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INDEX TO VOLUME LV

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This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles of papers read, officers

elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

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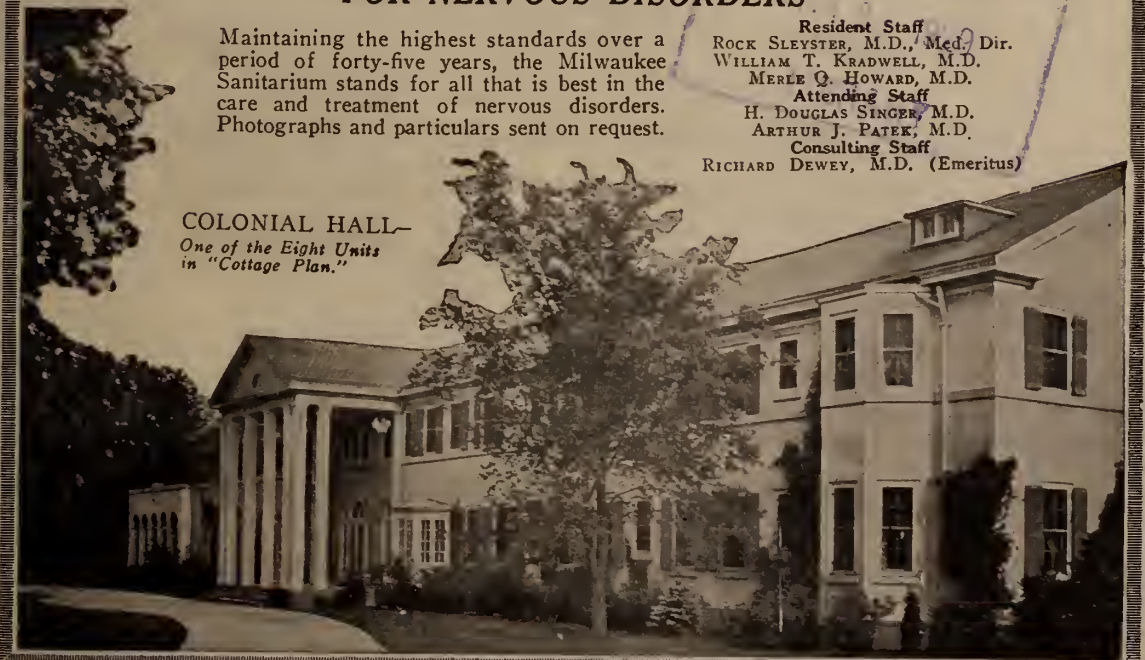
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Editorial

A HAPPY NEW YEAR

TARES OF 1928 MUST BE WEEDED OUT IN 1929

Future for Civilization Depends Upon Democracy's Non-Abuse of Economic Possibilities.
Happy New Year Possible Only If Democracy's Rights Are Conserved.

To wish good fortune is foolish, without pointing out the way in which to find it. To stand upon the threshold of 1929, and to remark "Happy and Prosperous New Year to All" would indeed be fatuous unless at the outset a warning is given as to the noxious plants, sown from socialistic seed, that threaten to choke whatever garden of plenty that science and progress may have laid out for the benefit of mankind.

With the evils of maternity welfare legislation, the increasing tendency to the lay dictation of medicine and the encroachments of that same state medicine that has given England and Germany the worst medical service in the world, readers of this periodical have become familiar, as year after year these columns have detailed the spread of these invidious evils. Within the last year still another factor has become a matter for potent recognition.

In the pay clinic, medicine as well as public welfare has a malign host with which to reckon. In these organizations is found not only a corporation practicing medicine, but an endowed corporation, resulting thus in an institution, ordinarily not only lay-dictated and governed, but so financed as to make competition therewith an impossibility for not only the individual medical man, but for any group of such men.

In Illinois, sponsors of the pay clinic are Julius Rosenwald and Edward N. Hurley, who have acknowledged themselves as believers in the pay clinic, to the extent of backing such institutions financially. Misguided indeed are these two men, wise in their own spheres of commerce and finance, but ignorant of the very essence

and spirit of that altruism that through the ages has made possible not only the perfection of the science of medicine but the spirit of the men who have administered this vital science.

The high grade physician is not a man who can be bought. His ethics like his skill are of themselves things apart, and as soon as these qualities become subservient to journeymen tactics the physician as a genuine physician ceases to function. Advocates of the pay clinic are reformers following a will-o'-the-wisp, and adventurers in an unknown land, strong in their own conceit but not wise even in that possession.

If ever vital demonstration were made of the danger of a smattering of knowledge it is in the idea of the laity that the science of medicine needs lay management. Mr. Hurley would resent management of his factories, Mr. Rosenwald interference in his mail order houses by men and women unaccustomed to the ins and outs of commerce, the short cuts and sharp corners of trade. Yet these same "good business men" think nothing at all of proffering their unasked advice, nay, of rankly usurping the most sacred rights of the inviolable profession of medicine.

For the benefit of the citizenry it is to be hoped that enlightenment as to the viciousness of the pay clinics will be widespread before the year 1929 shall have drawn to a close. The American people is notoriously slow to discover the P. T. Barnums in their midst and has long since, as a nation, forgotten the fable of the vendor of cheap razors who, it will be remembered, when taxed by a customer with the protest that the razors wouldn't cut, in reply to the query, "What were the razors made for, then?" made answer, "Why, sir, to *sell*." A great many of the pseudo-reforms visited upon the tax-payers each year are frankly of the same kidney. Postwar hysteria lingers among us, and socialistic and communistic innovations having failed and fallen in soviet Russia are seeking, in many gilt-edged disguises, a stranglehold upon the United States, its institutions and its public welfare.

Drastic in its far reaching effects as the pay clinic are the activities of the Children's Bureau in Washington, chief of the effects of which has been the Sheppard-Towner bill, reappearing this winter in strengthened and even more malicious guise as the Newton Bill. Not content with the farcical results of the Nineteenth Amendment,

or perhaps spurred on through the tremendous illicit profits made as a result of this emergency war measure in continuity, statute books of the country have become fallow fields for the fattening of all sorts of political bosses seeking a source of revenue dealing jobs for their henchmen. In the last analysis this is the fundamental of the greater portion of the "welfare" legislation meted out to a long suffering populace,

Epitomizing the warning against ambushade, let repetition be made that the best gift the new year can bring to both the medical profession and to the community at large is a public awakening to the fact that doctors should practice medicine and the laity, like the cobbler, "stick to its last,"

With sincere hope for such a consummation so devoutly to be wished, the ILLINOIS MEDICAL JOURNAL wishes its patrons, owners and readers a happy new year,

THE NEWTON BILL BETTER DESIGNATED THE SHEPPARD-TOWNER NEWTON BILL.

THIS BILL HAS THE OLD SHEPPARD-TOWNER ACT BACKED OFF THE MAP

IT CALLS FOR AN APPROPRIATION OF ONE MILLION ANNUALLY FOR THE CHILDREN'S BUREAU

A CHARGE OF DYNAMITE SUFFICIENT TO BLOW UP THE UNIVERSE IS CONTAINED IN THE TITLE OF THE BILL "TO PROVIDE A CHILD WELFARE EXTENSION SERVICE AND FOR OTHER PURPOSES"

As the protagonists for the Sheppard-Towner Act cede that this vicious piece of legislation is now practically dead these mercenary socialists have proceeded to raise it by proffering a ghost that is stronger than its original entity. In fact H. R. 14070 introduced May 28 by Representative Newton of Minnesota, may be said to have the poignancy and force of a phoenix newly risen from the ashes of public wrath that consumed the Sheppard-Towner bill and its iniquities.

The bill speaks for itself. Herewith is its reproduction. Read this through. Then for future reference, file. In this way we will be spared the future necessity for sending additional

copies to those who happen to have misplaced this number of the JOURNAL.

H. R. 14070

IN THE HOUSE OF REPRESENTATIVES

May 23, 1923

Mr. Newton introduced the following bill, which was referred to the Committee on Interstate and Foreign Commerce and ordered to be printed:

A BILL

To provide a Child Welfare Extension Service, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby authorized to be appropriated annually a sum of \$1,000,000 for the purpose of paying the expenses of a Child Welfare Extension Service in the Children's Bureau of the department of Labor, which shall promote the welfare and hygiene of mothers and children and aid in the reduction of infant and maternal mortality: *Provided*, That of this amount not to exceed \$50,000 shall be expended by the Children's Bureau in the District of Columbia and that the remainder shall be expended either independently or in cooperation with the State or Territorial agencies responsible for or engaged in the promotion of the health or welfare of children, or through such State or Territorial agencies, with county or municipal agencies engaged in child hygiene or child welfare work: *Provided further*, That the expense of such joint services as shall be undertaken shall be defrayed from the appropriation herein authorized and such cooperative funds as may be voluntarily contributed by State, Territorial, county and municipal agencies, or child welfare or other local associations or individuals.

Sec. 2. There is hereby created an Advisory Committee of Maternal and Child Welfare for consultation with the Chief of the Children's Bureau relative to the extension work to be carried on under the provisions of this Act. Said committee shall include the Surgeon General of the United States Public Health Service, the United States Commissioner of Education, and the Director of Extension Work of the United States Department of Agriculture, who with the Chief of the Children's Bureau shall be ex officio members of the committee and serve without additional compensation. Five other members of the said committee shall be appointed by the Chief of the Children's Bureau, with the approval of the Secretary of Labor, from representatives of recognized branches of child health and child welfare work not in the regular employment of the Federal Government: *Provided*, That at least one of these representatives shall be a State health officer belonging to the Conference of State and Provincial Health Authorities of North America. The terms of service of the members first appointed shall be so arranged that the term of one member shall expire each year, the subsequent appointments to be for a period of five years. The said members not in the regular employment of the Federal Government shall each receive allowance for actual and necessary traveling expenses

and hotel expenses while in conference: *Provided*, That such expenses shall not be allowed for more than ten days in any one fiscal year. Appointments to fill vacancies occurring in a manner other than as above provided shall be made for the unexpired term of the member whose place has become vacant.

Sec. 3. No portion of any moneys appropriated under the provisions of this Act shall be applied directly or indirectly to the purchase, erection, preservation, or repair of any building or buildings, or equipment, or for the purchase of any buildings or lands, nor shall any such moneys be used for the payment of any maternity or infancy pension, stipend or gratuity.

Sec. 4. No official, agent, or representative of the Children's Bureau shall by virtue of this Act have any right to enter any home over the objection of the owner thereof, or to take charge of any child over the objection of the parents, or either of them, or of the person standing in loco parentis or having custody of such child. Nothing in this Act shall be construed as limiting the power of a parent or guardian or person standing in loco parentis to determine what treatment or correction shall be provided for a child or the agency or agencies to be employed for such purpose.

The bill was referred to the Committee on Interstate and Foreign Commerce which is made up as follows:

James S. Parker, New York; John G. Cooper, Ohio; Edward E. Denison, Illinois; Schuyler Merritt, Connecticut; Carl E. Mapes, Michigan; Walter H. Newton, Minnesota; Homer Hoch, Kansas; Adam M. Wyant, Pennsylvania; Olger B. Burtness, North Dakota; John E. Nelson, Maine; Thomas J. B. Robinson, Iowa; Milton C. Garber, Oklahoma; Noble J. Johnson, Indiana; James M. Beck, Pennsylvania; Sam Rayburn, Texas; George Huddleston, Alabama; Clarence F. Lea, California; Tiltman B. Parks, Arkansas; Robert Crosser, Ohio; Ashton C. Shallenberger, Nebraska; Parker Corning, New York; Jacob L. Milligan, Missouri; George C. Perry, Virginia.

HEARING ON THE NEW SHEPPARD-TOWNER NEWTON BILL WILL PROBABLY TAKE PLACE IN JANUARY AT WASHINGTON, D. C.

Hearings will be held about January 14th, 1929. This date is only a guess but is based on these facts, but as Patrick Henry said: "We know of no way of judging the future except by the past," and we know that every previous hearing on one of these "WELFARE" measures has been held according to the convenience of the interested lobby organizations. They have usually sprung hearings when the General Federation of Woman's Clubs' Board meeting and the meeting of the maternity act directors take place, or in the middle of January—when the club women, and those drawing salaries under the maternity act, are in Washington ready to agitate among congressmen for extension.

This year, the General Federation Board meeting of this welfare bill will be held in Washington on January 9, 10 and 11. Therefore, hear-

ings on the Newton bill will be sprung either on January 12 (Saturday) or January 14 (Monday), without any adequate previous notice to the public at large. The Interstate and Foreign Commerce committee (to which the bill was referred) professes to know nothing about when the hearings will be held—if at all—and suggest asking Mrs. Marguerite Owen of the League of Women Voters. The Children's Bureau likewise refers all inquiries about the bill to Mrs. Owen.

As Mrs. Carrie Chapman Catt (founder and financial backer of the League of Women Voters) goes to Washington with her gang January 15, to open another "conference on the cause and cure of war," the chances thus are excellent that Mrs. Owen (who is giving out no advance information, however) will set the hearing for January 12 or 14, so that all the club women and League of Women Voter people will be in Washington to testify and "work" on Congress, without missing any of their own meetings as club women January 9, 10 and 11, or as pacifists on January 15.

THE CHILDREN'S BUREAU AND ITS ALLIED ORGANIZATIONS WORK THE HEROD RACKET TO PUT OVER THE SHEPPARD-TOWNER BILL

THE HEROD RACKET WILL AGAIN BE USED TO PUT OVER THE NEWTON BILL

THE CHILDREN'S BUREAU CLAIM CREDIT FOR ALL MATERNITY SALVAGE AND FURTHER EXPLOITS ITS MAIL ORDER LONG DISTANCE TREATMENT FOR A SLUSH FUND FEE OF ONE MILLION DOLLARS

Doctors and nurses who save mothers and babies should be on the alert for the "Herod Racket" that the Children's Bureau will attempt to push down the throat of Congressmen in putting over the Newton Bill.

Every doctor or nurse or hospital that saves the life of a mother or babe is statistically appropriated by the bureaucrats, who credit any reduction of infant or maternal mortality not to the doctors and nurses on the spot and on the job, but to the "mail-order" or "long distance" treatments that mothers received from the social workers of the Children's Bureau. No advance in medical science or practice is "saving mothers and babies" but "only the Children's Bureau," and that any Congressman who would vote to

stop this bureau is as guilty as Herod of "wanting babies to die." Mrs. Kelly worked the "Herod racket" to get through the original act; now the Children's Bureau and all its allied organizations are going to work the "Herod racket" again to get that one million dollar "slush fund" for the social welfarers under the Newton Bill. If anything, the Newton Bill is worse than the Sheppard-Towner Act, as the \$1,000,000 will be the bureau's to distribute almost at will—to such "child welfare" agencies as Hull House, Henry Street Settlement, and similar organizations—without let or hindrance from State health boards.

Medical men and the medical *women's* auxiliary should be prepared to make a strong showing against the Newton bill. It is "permanent legislation" if passed—and gives this radical Bureau that is always usurping both the provinces of the medical profession, as well as the political rights of the States and people, a permanent *campaign fund* of \$1,000,000 a year for distribution among agencies that "submit" to national care of maternity and infancy by bureaucrats at Washington giving "long distance" or "mail order" treatments to mothers, via the Government Printing Office, and setting "standards" for physicians and nurses that the "social workers" desire to promote.

Physicians should handle the medical and scientific side of the opposition so as to stop the effectiveness of the "Herod racket," and handle the political data and constitutional arguments through several able men in Congress. But, as everyone knows, the constitution of the United States counts for nothing when the bureaucrats bring in (through Dr. Copeland, Senator Sheppard, Mr. Newton et al.) juggled claims of "saving babies" through books and bureaucrats. When more mothers and babies die, however, "ignorant doctors" are held responsible.

TRAVELING EXPENSES NOW DEDUCTIBLE FROM INCOME TAX

THE MEDICAL FRATERNITY IS INDEBTED TO DR. CECIL M. JACK OF DECATUR, ILLINOIS

The end of the year has come upon us and the voice of the income tax is heard in the land with one of the sweetest notes in the melody that decision made in all justice and only in justice that traveling expenses incurred by physicians in

attending meetings of medical associations are deductible in the income of their federal income taxes, and the Commissioner of Internal Revenue has erred in denying the deductibility of such expenses. The Board of Tax Appeals made this decision in October of this year in passing upon the appeal of Dr. Cecil M. Jack of Decatur, Illinois. As the commissioner did not appeal against similar decisions rendered by the Board of Appeals in similar cases appertaining to ministers and chemists in cases identical in essential circumstances with the case of Dr. Jack it is not expected that an appeal will be here taken so that the decision will become final at the expiration of six months from its promulgation unless an appeal is taken to the courts prior to April 2.

Commenting on this case the A. M. A. remarks:

"Since the Commissioner of Internal Revenue first denied to physicians their right to deduct traveling expenses, in 1922, the medical profession has paid probably as much as a half million dollars into the treasury, to avoid unlawful demands by the commissioner, the distraint of property, and suits. Subject to certain limitations on the time within which claims for refunds must be filed, all of this money will be repayable to the physician who paid it, if the courts are not called on within six months to reverse the decision of the Board of Tax Appeals and if on appeal they sustain the decision of the board.

"Applications for refund may be filed without waiting for any further official action in the case. Claims for refunds for the tax years 1924 and 1925 must be made within four years from the date of payment; for the tax years 1926 and 1927, within three years; and for the tax year 1928, within two years. Unfortunately, in many individual cases the amounts repayable are probably so small that the physician will not feel justified in going to the trouble and expense of making a claim, and in many cases it will be difficult at this late date to produce adequate legal proof of the exact amounts paid for railroad fares, Pullman accommodations, meals, and other allowable expenses. Applications for refunds must be made on the special form provided for that purpose, copies of which can be obtained from the local collector of internal revenue. A separate application must be made for

each year for which a refund is claimed. Every application must show that it is based on the decision of the Board of Tax Appeals in *Jack v. Commissioner of Internal Revenue*. Applications must be filed with the collector of internal revenue within whose district the refundable money was paid.

Comment was made in the *U. S. Daily* on October 16.

HANDED DOWN BY THE BOARD OF TAX APPEALS

Cecil M. Jack v. Commissioner of Internal Revenue, Docket Nos. 14995 and 17662, Board of Tax Appeals.

The tax payer contended here that he was entitled to a deduction for expenditures he had made in connection with attending conventions of medical associations. These expenditures were for railroad fare, hotel accommodations and meals. The Board of Tax Appeals sustained his contention, reversing the Commissioner of Internal Revenue. Other questions were decided adversely to the taxpayer because of lack of evidence.

Following is the full text of the findings of and the opinion:

Petitioner resides at Decatur, Ill., in which city he is engaged in the practice of medicine.

He expended during the years 1920, 1921, 1922 and 1923, the respective sums, \$16, \$230, \$375 and \$384.46 for railroad fare, accommodations and meals in connection with attending meetings and conventions of various medical associations. He deducted from gross income and Commissioner disallowed as deductions for said years the respective sums, \$16, \$230, \$375 and \$15.

"In those decisions above mentioned the commissioner officially acquiesced, without waiting for six months to expire, and there seems to be no reason why he should follow a different course now," continues the A. M. A. "Acquiescence seems more probable, too, since the board, in promulgating its decision in the present case, cited as precedents the very cases in which the commissioner had acquiesced, and repudiated as a precedent a decision of the board by which the commissioner undertook to justify his course. In that case, the board pointed out, it was necessary for the board to uphold the commissioner's denial of the physician's claim of the right to deduct traveling expenses, because the physician had not submitted proofs

of the amounts expended. The only discoverable result that would follow an appeal by the commissioner is added expense and trouble to the taxpayer and to the government, an additional case to clog the court calendar, and, pending a decision by the court, many thousands of payments unlawfully exacted of physicians under the guise of taxation, to be added to the tens of thousands of such payments already exacted, all of which the government may be called on to refund."

All physicians who have kept accurate records of their expenses in attending medical meetings since 1922 can now obtain a refund of taxes on such sums if claims are filed promptly. Applications for refunds must be made on a special form (Internal Revenue Service, Form 843), which can be obtained from any collector of internal revenue. A separate form must be filed for each year.

Those who have kept no accurate records of their traveling expenses in this connection can obtain no refunds, but from this time on they should save Pullman stubs, receipted hotel bills, etc., and should take a receipt when buying railway tickets, so as to be able to back up any deductions they may claim in the future.

DENTAL ECONOMICS AT THE PHYSICIANS FELLOWSHIP CLUB

Before the Physicians Fellowship Club a program was presented by Dr. L. W. Morey for the Chicago Dental Society and the Chicago Department of Health for Dental Clinics in the schools.

According to *Northwest Medical*, salaries of dentists doing this work will be paid from appropriations made jointly by the Chicago Dental Society and the Chicago Department of Health.

Scientifically speaking, this periodical gives its encomiums to Dr. Morey, but adds, "We do not agree with the stand he takes on economics." Most emphatic condemnation of the scheme came from physicians in the subsequent discussion, save for two exceptions. Though the dentists agreed with Dr. Morey, save for two dissenters, comment revealed that the dentists had given very little thought to the subject and showed little knowledge of its economic bearings. Consensus holds that unless dentists and their leaders achieve a conception of economic right

and wrong different from that possessed by medical leaders, this scheme and others similar will place the dental profession on the brink of the same chasm of state medicine, against which for years the medical profession has been staggering, and which system has proven so disastrous to the profession of medicine in England and on the Continent. The American public loses its sense of humor when assaulted by schemes of designing persons, animated by varying motives, personal profit, vanity or gain, or with political interests. Maudlin sentiment should stop. If a physician or dentist wishes to extend charity to someone from his own practice, that should be his privilege, or his duty, but to extend this beneficence to the patients of his fellow practitioners is an economic crime. Instead of going into the schools, the Chicago Dental Society, with the financial aid of the Health Department, should work with a committee of dentists from each branch, thus caring for the entire city, to the better results for the deserving poor. more profit to each member of the society, and imposition upon none.

NOTICE SECTION ON RADIOLOGY PROGRAM

Radiologists desiring to present papers before the Section of Radiology of The Illinois State Medical Society meeting to be held at Peoria, May 21, 22 and 23, 1929, are invited to write to Dr. E. G. C. Williams, Danville, Ill., Chairman of the Section or to the undersigned.

The title and draft or synopsis of the paper must be in our hands before February 1, 1929.

I. S. Trostler, M. D.,
Secretary Section on Radiology,
812 Marshall Field Annex, Chicago.

Correspondence

THE NEWTON BILL

Silvis, Illinois, December sixth, 1928.

To The Editor: I have studied H. R. 14070, known as the Newton Bill, and can best make reply to your inquiry of the third instant by entering a brief discussion.

As I read it, the bill proposes that the United States commit itself and embark upon a permanent policy of doing certain work in individual states, whereas Constitutional authority

and practice have, until now, held Federal action limited to interstate responsibilities.

The provision that Federal money may be expended at will and in the whim of a single bureau officer in cooperation with "local associations or individuals" (extragovernmental individuals) should be sufficient to brand the entire proposal as a golddigger's phantasy. I seriously doubt that responsible agents of government will be found so credulous as to permit such an arrangement. Certainly, I hope not.

The money which the bill proposes in this fashion to appropriate would come necessarily from tax collections, of which we are told that some 95 per cent. comes from twelve states. The expenditure outlined would rest with the whim of one individual and not only might be, but evidently is intended to be disproportionate among the several states. (It is within the bounds of conception that Illinois, contributing 7.96 per cent. as one of the twelve, might receive nothing at all in return), whereas, states contributing little or nothing would receive maximum sums.

In the matter of an "advisory committee" which the bill defines as being for show purposes only, I should take exception to the provision which prescribes that one member "shall be a State health officer belonging to the conference of," etc. That seems a very ill-advised class-recognition of extra-governmental groups. If it were to be accepted as proper legislation, I would wish to amend that one member of the Illinois Medical Society and one member of the Ministerial Alliance and one member of the Penobscott, Maine, chapter of the American Red Cross (if any) be included in the makeup of the "committee." These organizations have equal right with any other mutual conference.

Section 4 gives the inference that there is a plan to work with and upon individual children in the United States except where specifically prohibited by the parent or guardian of an individual child; such a plan can operate only upon the assumption that a child is the property of the State. That is a thing which I deny and which should cause alarm to the parents of children and to all American economists. The family is our unit of government and should be closely guarded against inroads of social thought. Whenever such inroads shall have been quietly

perfected, then our government will be seen to have abdicated in favor of a communist revolution—not a desirable thing.

To me it seems elementary that work pertaining to the public health or to the physical welfare of citizens should fall to our recognized Public Health Service rather than be appended to the Department of Labor, with its normally economic major interests.

WM. D. CHAPMAN,
Chairman of the Council,
Illinois State Medical Society.

COMMENDS THE EDITORIALS IN THE ILLINOIS MEDICAL JOURNAL

Mayo Clinic, Rochester, Minn.
December 19, 1928.

To The Editor: I wish to commend the editorials which appear from time to time in the Illinois Medical Journal, and particularly wish to praise the articles in the last number, entitled "Educational Committee Has Gone Far and Accomplished Much." This is a brief and clear outline of the activities of an educational committee and could serve as a model program for every state association. Not only do you outline possible avenues of progress, but you logically present the reasons for such actions. This article should be widely reprinted and might well be read at some meeting of every county medical society.

WILLIAM F. BRAASCH, M.D..

ROCKEFELLER GIVES ALBANY COL- LEGE \$100,000. PROVIDES FOR REGIONAL MEDICINE SERVICE FOR UP-STATE NEW YORK

New York, December 26, 1928.

To The Editor: I am here for an advertising section meeting. Thought the enclosed clipping from the *New York Herald-Tribune* of December 25 might interest your readers.

VIDA A. LATHAM, M.D.
1644 Morse Ave., Chicago, Ill.

ROCKEFELLER FUND GIVES ALBANY COL- LEGE \$100,000

Provides for Regional Medicine Service for Up-State Aid

ALBANY, Dec. 25.—A grant of \$100,000 from the Rockefeller Foundation to the Albany Medical College to establish a department of regional medicine, was announced today by the school, a department of Union University.

The purpose of the department, it was said, will

be to work out a system of medical service for northeastern New York State by which towns and rural communities may obtain more of the opportunities for medical protection, which have hitherto been restricted chiefly to metropolitan areas having medical centers.

**MR. HURLEY PROPOSES TO ESTABLISH
A PAY CLINIC WHERE DOCTORS WILL
DO THE WORK FREE AND WILL NOT
BE INSULTED BY BEING PAID EVEN
AN INADEQUATE SUM**

Chicago December 11, 1928.

To The Editor:

Now that our medical society has seen fit to denounce the Life Extension Institute and its latest imitator, "The Good Health Institute," both of which pay the doctor who makes the examination, I wonder what they will say about the attempt of our friend (?) E. M. Hurley, who proposes to establish a place where doctors will do this work *free* and will not be insulted by being paid even an inadequate sum. My suspicion is that exactly nothing effective will be attempted. All that will be done will be to hand out a lot of "hooy" to those who are the "hewers of wood"—who pay the freight. You are not included in this, as you at least see that the socialists are after us.

WM. L. BEECHER, M. D.

25 East Washington St.

HAPPY NEW YEAR

THERE'S NOTHING IN THE WORLD TO WORRY ABOUT
In this life there are just two things—
Success and Failure.

If we succeed—There's nothing to worry about.
If we fail—There are just two things—
Health and Sickness.

If we have health—There's nothing to worry about.
If we are sick—There are just two things—
Get well or Die.

If we get well—There's nothing to worry about.
If we die—There are just two things—
We go to Heaven or to Hell.

If we go to Heaven—There's nothing to worry about.

If we go to Hell—We may be so busy shaking hands with friends

We won't have time to worry.

"Borrowed" by H. G. OHLS.

TEAMWORK!

("UNITED WE STAND—DIVIDED WE FALL")

We can't play ALONE in the game of life—

We're dependent, my friend, on OTHERS;

We cannot "get by" in the struggle and strife,

Except for the help of our BROTHERS!

Whatever we plan, or whatever we do;

Whatever we give of the best of us,

Is meant to include all our FELLOWMEN, too—

And add to the joy of the rest of us!

Whatever we "vision"; whatever we "dream"—

Be we lowly or lofty of station;

Whatever our "idea," "invention," or "scheme,"

We are working for all of creation!

God's running this world, and His vast Universe,

And blesses the worst and the best of us;

And the gifts He has made to divinely disperse

Are not only for YOU—but the rest of us!

We may call it by this name, or call it by that—

"Teamwork," or plain "Co-operation";

"TOGETHER WE STAND"—by ourselves we fall flat;

TOGETHER, my friend, we're the Nation!

Whatever we do, or whatever we plan—

We can't stand ALONE, e'en the best of us,

But must SHARE of our gifts with our good fellow-man—

For we're only a PART of the rest of us!

—James Edward Hungerford.

THE JOY OF BEING THE EDITOR

Getting out this magazine is no picnic.

If we print jokes, people say we are silly.

If we don't, they say we are too serious.

If we clip things from other magazines,

We are too lazy to write them ourselves.

If we don't we are stuck on our own stuff.

If we stick close to the job all day,

We ought to be out hunting up news.

If we do get out and try to hustle,

We ought to be on the job in the office.

If we don't print contributions,

We don't appreciate true genius.

And if we do print them,

The magazine is filled with junk.

If we make a change in the other fellow's write-up,
we are too critical

If we don't, we are asleep.

Now, like as not, some guy will say

We swiped it from some other magazine.

We did.

Note:—We did, we clipped it from California & Western Medicine.

LEARNING TO MILK THE COW

Farmer: "Now, come along and I'll teach you to milk the cow."

Cockney Hand: "Seein' I'm new to it, Mister, hadn't I better learn on the calf?"—*London Opinion*.

Original Articles

THE USE OF INTRAVENOUS LEAD IN THE TREATMENT OF CANCER*

R. T. PETTIT, M.D.

OTTAWA, ILLINOIS

Within the past two years those of us particularly interested in cancer and its treatment have had our attention directed to the work of Professor Blair Bell of the University of Liverpool and his method of treating cancer by the use of metallic lead intravenously. Naturally, when any new treatment presents itself in this disease the medical profession looks at it askance—too frequently the treatment is a rank fraud such as the “Koch Serum,” or the claims of the new remedy, even though its originators are not dishonest, are not supported by sufficient scientific and clinical evidence to prove its value. It was only when Dr. Francis Carter Wood¹ interested himself in this method of treatment and showed conclusively by experimental evidence on rat tumors that it had some merit that I decided to make a first hand investigation to determine for myself whether or not it was a remedy I would care to use on my own patients.

First, in reading the reports of Professor Blair Bell and his co-workers I was struck by the high standard of their scientific work and their very modest claims of clinical results.

Convinced that here was a method of treatment of merit and fortified in my opinion by such men as Schamberg of Philadelphia and Bloodgood of Baltimore, I decided to go to Liverpool and devote whatever time was necessary to make a thorough investigation of the matter and this paper is a report to this Society of my investigation.

By way of introduction let me say that if any of you wish to go to Liverpool to visit Professor Blair Bell's clinic you will be welcomed if you have proper letters of introduction from some reliable organization or individual known to him such as the American College of Surgeons or Dr. Francis Carter Wood of Columbia University. It is impossible for him to receive every one and to know what their antecedents are and very properly he does not want his methods to

fall into improper hands. Let me quote one of his recent papers.¹

There is still a considerable danger that if lead be used indiscriminately in the treatment of malignant disease many fatalities will follow, and the method itself, either from excessive caution or too much zeal, will be brought into disrepute. As we have already demonstrated, we ourselves have had disasters, and although our extensive experience has enabled us to avoid many more similar disasters, it is still quite possible for a patient to lose his life if incomplete investigations be carried out. Any person suffering with the slightest degree of renal impairment or cardiac instability or disease may die most unexpectedly as the result of a single dose. It is therefore incumbent upon us to protect the public as best we can and at the same time to safeguard the reputation of our work. This we feel can best be done by placing the therapeutic agent, when it is available, in the hands only of those who have had some experience of the method and have ample facilities for biochemical and other investigations. This means that if there be a desire in any special clinic to try out the method, a biochemist and clinician be sent to Liverpool to study for, say a week, the methods adopted, especially in regard to the selection of cases and their preparatory examinations. “Choriotope,” as we have called the preparation used by us, can only be bought with our permission and this will not be unreasonably withheld.

Lead is very toxic and dangerous and even though (at present) it should only be used in advanced and inoperable cases, one cannot ease his conscience in this instance by saying “it won't do any harm even if it doesn't do any good.”

The use of intravenous lead in the treatment of cancer is founded on a very substantial theoretical basis and this theoretical basis is now supported by a mass of scientific data worked out by the Liverpool Cancer Research Organization.

Many years ago Professor Blair Bell, who is head of the Department of Obstetrics and Gynecology of the University of Liverpool, was struck by the similarity both morphologically and physiologically between the chorionic epithelium of the trophoblast and the carcinoma cell. Both were much alike in many respects. Both may have a syncytial arrangement, show a tendency to rapid growth, invasion of other tissues, erosion of blood vessels and metastasis. He also noted at an early date as his earliest publications will show, that lead poisoning causes a specific necrosis in the chorionic epithelium in pregnant animals, causing abortion. He has since shown in rabbits that one-half of the lethal dose of lead

*Read before the Section on Radiology, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 10, 1928.

given intravenously will produce abortion quite consistently.

Starting from this basis and believing in the similarity between the chorionic epithelial cell which invades the maternal tissues seeking nourishment, and the carcinoma cell, which also invades other tissues for the purpose of seeking nourishment and having noted the susceptibility of the chorionic epithelium to lead (a property that was not shared by other metals) it occurred to Professor Bell that cancer cells might also be susceptible to the poisoning effects of lead if administered in sufficient amount.

Using at first metallic lead in a finely divided state intravenously in several advanced and hopeless cases some very striking results were achieved—certainly enough to encourage an extended and intensive study of the method.

In one of these early cases, an extensive sarcoma of the stomach, following the administration of the lead, the patient suddenly died of acute peritonitis and autopsy revealed a complete necrosis of the stomach at the post mortem. Professor Glynn could find no stomach, simply a mass of dead tissue.²

Another early case is reported as follows:²

On November 9, 1920, five years ago yesterday, a woman was admitted to my maternity ward at the Royal Infirmary, Liverpool, for her confinement which took place a few days later. She was suffering with an extensive ulcerated carcinoma of the left breast with glands in the axilla. Operation had been considered useless six months previously by two of my surgical colleagues. The growth had been ulcerated during pregnancy, as is usual in these circumstances. I was looking for just such a hopeless case.

A section was prepared from a piece of tissue adjacent to the ulcerated area, and intravenous injections of lead were given. Not only is the patient well today, five years later, but also she has had two more babies in the interval, both of whom she has suckled at the breast that was affected.⁸

These and several other instances were so striking that three years ago the Liverpool Cancer Research Organization was formed. The funds were furnished by several Liverpool citizens and more recently all funds received as fees from private patients for consultations, examinations, injections and hospital care have been received by this Committee and this body defrays the expenses in connection with both the clinical work and laboratory investigations. Certainly no one can accuse Professor Blair Bell and his co-workers of mercenary motives.

The organization is made up of the heads of the various departments in the University of Liverpool whose special knowledge could be brought to bear upon the different aspects of the problem and under these department heads full and part time research workers and clinicians are employed. About fifty reports have been published by the organization and as the work is well co-ordinated under the direction of Professor Blair Bell, a great deal has been accomplished in the fields of chemistry, biology, pathology, animal experimentation, pharmacology, and clinical medicine and surgery. There still remains, however, a great deal more to be done and it is to be sincerely hoped that sufficient funds will continue to be available to keep this organization together and working on the different phases of this problem.

The main thing now is the perfection of a lead compound with increased affinity for the cancer cell and decreased affinity for normal cells comparable to salvarsan in its relation to the spirochaete and the tissues and cells of the host. Up to the present time over fifty preparations have been tried out and little or no progress along this line has been made.

The problem, I am quite sure, however, is capable of solution with increased knowledge of the pathology and particularly the pathological physiology of cancer.

Let me refer briefly to some of the steps that have already been taken along this path that point, I believe, the way to future advances along this line.

As stated above, there are a number of things about the cancer cell that indicate a behavior similar to the cell of the chorion—invasion, erosion, rapid growth, multiplication, and metastasis. There are other similarities particularly chemical and physiological.

Blair Bell believes the cancer cell to be not an "undifferentiated" cell, but a "de-differentiated" cell, a reversion to an ancestral type forced upon it and this reversion is similar to that seen in all evolutionary processes seen in nature and like these reversions it is the result of adverse living conditions and the resulting increased difficulty in seeking nourishment. It is in fact the taking on of a less differentiated, orderly habit of life in the struggle for existence, and the chorionic epithelium represents

the ancestral type and the cancer cell a reversion to this type.

Elaborate experiments have been carried out by Professor Lewis and his associates that show quite clearly that the cancer cell and the chorionic cell have a similar degree of permeability (which indicates a similarity in capacity for growth and multiplication) and that the cancer cell is like the chorionic cell and unlike the normal somatic cell, or the cell of benign growths in that it has a very high phosphatid or lecithin content and a comparatively low cholesterol content.

Professor Lewis has also confirmed Warburg's remarkable discoveries. Warburg has demonstrated that the cancer cell differs from the normal cell in its ability to utilize oxygen.

The normal cell takes up oxygen and gives off CO_2 —a normal respiratory capacity. The cancer cell, however, even in the presence of oxygen, does not have this capacity but derives its energy by splitting glucose with the formation of lactic acid. A cancer may have five times as much lactic acid as the surrounding normal tissues. Lewis has found that this same type of impaired respiratory capacity is seen in the chorionic epithelium.

These scientific discoveries have an extremely important bearing upon the selective action of lead on both the chorionic epithelial cell and the cancer cell for the following reasons:

Lead when introduced into the circulation is in all probability converted into the tribasic phosphate either in the blood stream or in the tissues. In the presence of increased acid such as found in the cancerous tissues the tribasic phosphate which is comparatively insoluble is converted into the acid phosphate which is many times more soluble and toxic, thus causing a local increased toxic effect.

The question thus immediately presents itself. Why not use the less toxic lead phosphate? This is being done at present, but as yet sufficient time has not elapsed to reach a conclusion regarding its value. All I can say is that up to the present time over fifty modifications of the original lead preparation has been tried and most of them have been found to be inert or too toxic for practical use.

Until Blair Bell and his group have tried out the lead phosphate I do not feel like using it

because of the failure of so many other lead compounds. He and he only is competent to judge of its relative value and he told me he would probably be in a position to report on it in the course of six or eight months.

Let me report to you the plan of treatment as worked out at Liverpool.

First as to the selection of cases. Let me quote Dr. L. Cunningham, Assistant Director of the Liverpool Cancer Research Organization.⁴

In treating malignant disease with lead one of the greatest difficulties with which we have had to contend has been the selection of those cases which present a reasonable chance of being benefited and which at the same time are likely to withstand the toxic effects of the therapeutic agent employed. There are, of course, certain obvious contraindications to treatment among which must be mentioned gross pathological lesions of one or more of the important organs of the body, and serious cachexia of the patient. We have been brought face to face, however, with another problem, namely, the idiosyncrasy of the individual, which unfortunately discounts to a certain degree the investigations of the vital functions of the body, upon which, nevertheless, we lay considerable stress. We are unable to explain how it is that, other things being equal, some patients, for no apparent reason, are unaffected by large doses of lead, whereas others are made very ill, and may even die after a moderate dose.

It has been our practice before undertaking the treatment of cases to make a complete analysis of the blood and urine, apart from the careful medical examination of the important organs of the body. We also make use of radiological studies where these are likely to be of assistance in diagnosis and in determining the extent of the disease. These investigations are carried out from time to time in the course of treatment; in particular observations are repeatedly made in regard to the blood and urine.

In the case of the blood, full counts are made of the red and white corpuscles and the percentage of hemoglobin is estimated. The blood urea is also determined and in certain cases the blood sugar in the course of treatment is determined. We examine regularly, in the course of treatment, blood films for stippling of the red cells and this has been of great value in determining not only the dose of lead which should be given at any period but also the interval which should be allowed to elapse before a further dose is given. We usually suspend treatment when there is more than one stippled cell per field even in the absence of any other contra-indication.⁴

I found, in observing the work at Liverpool that the blood examination for stippling of red cells was the one most important guide to treatment—the usual clinical signs of lead poisoning as seen in industry such as lead line on the

gums, headache, wrist drop, and colic, while at times present were by no means constant or regular in their appearance.

The most important contra-indications to treatment were (a) myocarditis, (b) hypertension, (c) renal impairment and (d) anemia-hemoglobin less than 50 per cent. or red cells less than three million.

The preparation of lead that has been most consistently effective is a metallic suspension in gelatin prepared by the sparking method of Bredig.³ Until some better preparation is perfected and has the approval of the Liverpool organization I do not believe in using any other lead preparation. Most of the lead compounds so far tried out have been found to be either too toxic or are inert in their action. However, I feel very sure that with further study particularly of the pathological physiology of the cancer cell and the pharmacology of lead compounds a preparation will be found with increased affinity for the cancer cell and decreased affinity for the normal cell.

The lead suspension is prepared as follows:

Silver free lead (assay lead) is melted and poured from a low height (a few inches) into water to form small shot-like masses. A handful of this lead is put into a large evaporating dish about eight inches in diameter with 500 c. c. of the sparking solution which is one-half per cent. "Difco" solution of gelatin containing 5 c. c. of two per cent. solution of calcium chloride per 500 c. c. The lead is sparked with either a direct or alternating current for about fifteen minutes. The current is reduced by placing five 600 watt conical resistances arranged in multiple down to 30 amp. at about 60 volts. The poles are bars of commercial lead about $\frac{1}{4}$ inch diameter and about 8 or 10 inches long, made of rolled sheet lead (assay lead). These are stirred about in the "shot" for about fifteen minutes or until the solution is quite black; decant into flask and cool in running water. The supernatant solution is siphoned off into a flask, and centrifugalized lightly (1760 R. per minute) for three or four minutes. A portion of this is poured off for assay for its lead content. Assay and bring to 500 mg. per 100 c. c. then add salt to make 1.1 per cent., then boil.

Colorimetric method for determining lead in Colloidal Solution. Five c. c. of the colloidal

lead solution which is ready to be injected is placed in a 500 c. c. graduate and 2 or 3 c. c. of concentrated nitric acid added to make the solution water clear. Make up to 50 c. c. volume with distilled water and mix. Five c. c. of this placed in 100 c. c. graduate and shaken gently with 5 c. c. to 10 c. c. of a saturated solution of sodium acetate. Dilute to 50 to 60 c. c. and 3 c. c. of freshly prepared $\frac{1}{2}$ per cent. gelatin solution and mix. Develop brown color with 5 c. c. or more of fresh hydrogen sulphide water and make up to 100 c. c. At the same time a standard is prepared as follows: 5 c. c. of standard solution of lead acetate containing 2 mgs. of lead to 5 c. c. are placed in another graduate and after adding two or three drops of nitric acid and the sodium acetate is also made up to 50 or 60 c. c., 3 c. c. of gelatin solution added and the color developed with hydrogen sulphide. Bring to 1000 c. c. The colors are then compared in a colorimeter. The calculation is made as follows:

$$\frac{\text{Reading of standard} \times \text{amt. lead in standard} \times 200}{\text{Reading of unknown}} = \text{sugar lead per 100 c. c.}$$

Example: $\frac{30 \times 2 \times 200}{24} = 500 \text{ mgs. of lead}$

In sparking the solution it seems to help to have the gelatin cold and place the evaporating dish in a dish of cracked ice.

After the suspension is prepared it is put in glass bottles with ground glass stoppers (previously sterilized) and the bottles filled to the top and promptly stoppered as the preparation oxidizes very rapidly to form lead hydroxide, the most poisonous of the lead compounds.

The suspension should be used within 72 hours and is always given intravenously. The first two doses are usually 75 mg. and then the amount is reduced to 50 mg. for the next two doses and then 25 mg. for each of the succeeding doses until a total of 500 mgs. is reached. The interval between injections is usually seven to ten days but the chief guide to dosage and interval is the blood examination.

The reaction to the treatment is variable—it may be local or general or both. Usually the patient complains of pain at the site of the tumor within a few hours after the injection and this pain may be accompanied by swelling and edema. The general reaction affects the blood and blood forming organs with the pro-

duction of anemia and stippling and there may be more or less disturbance of the gastro-intestinal tract (chiefly colic) and of the liver (icterus) and kidney (albuminuria) and suppression of the urinary output.

Blue line on the gums is rather rare.

Toxic effects on the central and peripheral nervous systems are extremely rare.

The anemia produced by the lead is treated by injections of Iron Arsenite and when necessary, by blood transfusion. In severe colic morphin and atropine are used.

The results of treatment are not startling, except in isolated cases, but I believe are encouraging considering the class of cases treated. Since November, 1920, until November, 1925, 227 cases received treatment and these may be tabulated as follows:

FATE OF PATIENTS, NOVEMBER 9, 1920, TO NOVEMBER 9, 1925

Died before treatment could be completed.....	50
Died of intercurrent infections.....	3
Died after treatment (including 2 deaths from acute nephritis, the result of lead poisoning).....	106
Died as result of extensive destruction of growth by lead..	4
Too recent for results to be estimated.....	14
Complete treatment refused, but patients are living normal lives	9
Disease completely arrested.....	10
Believed cured and treatment stopped.....	31

227

The percentage of success is, therefore, about 20 per cent. and considering the class of cases treated this is considerable.

With improvements in methods which surely will come, with the improvement in class of cases treated which will be justifiable only when the dangers of the treatment are removed, with the employment of lead therapy in conjunction with other well known and reliable methods of treatment such as surgery, electro-coagulation and x-rays and radium I am convinced that lead will come to occupy a definite and accepted place in our list of weapons against this disease.

For the present, certainly, its use is limited and as in the case of x-rays and radium over-enthusiasm has no place. The promiscuous injection of lead into patients' veins without proper study and care can only cause harm and react against a treatment that has limited but definite value.

Lead has been shown by Blair Bell clinically and by Frances Carter Wood experimentally on

rat tumors to have a destructive effect on cancer cells.

X-rays and radium have long been known to possess similar properties.

A combination of the two should produce better results than either one alone; in fact, in the present state of our knowledge, lead may very properly be considered a useful adjunct of radiation and surgery.

BIOGRAPHY

1. W. Blair Bell; Brit. Med. Jour., November 20, 1926.
2. W. Blair Bell; The Lancet, November 14, 1925, Page 1003.
3. Lewis, W. C. M.; Brit. Med. Jour., Nov. 20, 1926.
4. Cunningham, L.; Brit. Med. Jour., Nov. 20, 1926.

DISCUSSION

Dr. E. G. C. Williams, Danville: The question is often asked, "Well, doctor, what is the cause of cancer, and what is the cure for it?" My answer to that is, "If I could answer that question, within twenty-four hours they'd drag the Statue of Liberty down off its pedestal and be erecting one there for me."

It is the biggest thing we face. It is the darkest subject in medicine and a thing upon which more work is being done than any other branch. When anything like the lead treatment comes to the surface, we grasp for it and we want to learn all that we can about it. So much so that Dr. Pettit goes to Liverpool, really with this idea of investigating the lead treatment.

We feel certain that the cause of cancer does not lie within the realm of bacteriology. We know that certain ones occur from irritation or at the point of irritation, yet many occur where there is no irritation at all. We have previously described cancer as a bolshevik uprising of certain body cells which throw off the controlling government of the body and start a localized government of their own, and as all such governments do, soon get to fighting among themselves, crowding each other out, and undergo central necrosis.

We have certain agents which we are using against cancer. We know that the ideal is complete removal of the entire process and its surroundings. Most cancers could be cured this way if taken early enough, but as we see them, most of them are beyond this stage. We are aiming at them, therefore, treatments have have a chemical or physical effect—our x-ray and radium—and now we add to this the possibility of lead.

I feel extremely hopeful that our future in cancer treatment will be along the physial-chemical lines.

Yesterday Dr. Grote gave us something to think about in his talk on the fluorescence of certain body cells under certain conditions. Today we have from Dr. Pettit this talk on the influence of lead on these cancer cells. I have certainly enjoyed what Dr. Pettit has said and will leave within a few days to check up in Liverpool just what he has been telling us. I

hope to come back with even more than he has given us because I have that to start on.

In this country there is, down at Harvard, Dr. Lawrence Ferhall, a boyhood friend of mine, who, has been working for years on the chemistry of lead and on lead poisoning. I believe that Lawrence Ferhall is the man who can help us in this country on the chemical side of this treatment. I go skeptical, even as I know Dr. Pettit went. I hope to come back with a feeling that we are possibly arriving at something that we can use. It is merely another little tug at the curtain that is hiding the real scene from us.

Dr. Harold Swanberg, Quincy: The thought went through my mind as Dr. Pettit read his paper that there is no doubt that carcinoma cells are sensitive to lead and I am wondering whether Professor Blair Bell had made any observations of studying the incident of cancer among workers in lead.

We have a large number of occupations in this country in which there are many workers in lead. These men have received small doses of lead for a good many years. Some of them have lead colic from time to time. Has this prophylactic treatment with lead had anything to do with reducing the incidence of cancer among such individuals? I think it would be very interesting to know concerning this.

I appreciate the fact that most radiologists have had very little experience with the lead treatment of cancer on account of the difficulty of securing a staple preparation. I am sure Dr. Pettit will be glad to answer any questions.

Dr. H. W. Grote, Bloomington: The question of lead poisoning brings to mind a case that was presented to me about three or four years ago—a case of lead poisoning that had some sort of a lesion in the eye. It was thought by the referring physician that there was a malignancy. That case received one x-ray treatment—I don't know now how much—but we had a terrific reaction, so much so that I never saw the patient again. The patient saved me from a malpractice suit, I think, by conveniently dying about three weeks later.

Along about that time Dr. Magnuson of this city took me out to see a patient who worked in some foundry and that patient underwent several exposures for the making of some radiographs and that patient sustained a very severe erythema. Dr. Magnuson wrote me and asked me if I thought we were up against a burn proposition. Radio-dermatitis, not burn! He was worried considerably, and although I had nothing to do with it excepting as an innocent bystander, I came up here to see that patient again.

These things just occurred to me as Dr. Pettit was reading his paper.

I have learned since yesterday that there is a lot of work going on at Johns Hopkins in the experimental physiological laboratory on the fluorescence of abnormal tissue. I didn't know that before, but I just heard it, and particularly as regards malignancy.

Dr. J. S. Archibald, Decatur: I would like to ask

Dr. Pettit if they are using any other method in conjunction with the lead; e. g., x-ray or radium.

Dr. R. T. Pettit, Ottawa: I went to Europe not only for the purpose of going to Liverpool but for making a visit to a number of the European clinics. But my main reason for going at this time was to visit Liverpool. I wanted to see what kind of men they were, what kind of work they were doing, whether we should believe them or whether we should not. If you see a man face to face and talk to him, you can form a much better opinion of him than you can by reading some articles that he has written. I think we all feel this way.

My impression, after visiting Liverpool, was that Blair Bell is a man of unusual scientific attainment, of the very highest ethical standards and a man of unquestioned honesty.

I would like to cite a case I saw being treated at a clinic; a case of carcinoma of the nasal pharynx that had received one dose of lead and had the whole carcinomatous mass degenerate and necrose and slough out. I looked into the nasal pharynx three weeks after the injection and it appeared smooth and clean where the mass had sloughed out.

The man had complained after his treatment of terrific pain in his head and particularly in the back of his throat. This proved to me as much as anything else that carcinomatous tissue is affected by the intravenous injection of lead.

With regard to Fairhall and Minot of Harvard University, they have done a masterly piece of work on industrial lead poisoning and if any of you wish to undertake this method of treatment you most certainly should have Fairhall's book, because he has done more and better work on this subject than almost anyone I know.

With regard to workers in lead, that matter has been investigated and it has been found that the incidence of carcinoma in lead workers is less than normal.

How does this lead act? Has it a toxic effect upon the carcinoma cell? Blair Bell believes it has. The carcinoma is like chorionic epithelium, and with an increased permeability of the cell membrane, an increased content of phosphatid, the lead is attracted to and gets into the cancer cell, combines with the phosphatids and produces a toxic effect resulting in necrosis.

Francis Carter Wood believes the effects of lead are due to thrombosis of the blood vessels in the tumor. Other people are of the opinion that the small radioactive properties of the lead may have something to do with its action. Of course you remember lead is the end product of radium. How do we know but that lead still possesses a small amount of radioactive activity?

With regard to combination of lead with other methods, let me say this. Blair Bell had to prove that lead was of value. He has done that. We do not need to go over that again. That is proved. Clinical results also show what can be done with lead alone.

We know what we can do with x-rays, and radium alone. We know what we can do with surgery alone. It would be unreasonable now to try to treat cases with lead alone and neglect our other good methods of treatment. At Liverpool at the present time they use surgery, electrical coagulation and x-ray as well as lead when indicated.

What better results are we going to get with intravenous injections of lead? We do not know but I felt that the outlook is reasonably hopeful for better results, particularly in hopeless cases.

With regard to the use of other metals, experiments have been made on tissue cultures, upon living plants, upon animals and upon human cases and it has been proven quite satisfactorily that these properties are possessed by lead and no other metal. Copper, platinum, tin and several others have been tried out, but have been found to be of no value.

With regard to irritation, Blair Bell believes that irritation makes it more difficult for the normal cells to get nourishment, and these cells revert to an ancestral type, seeking means of living, seeking nourishment, and the result is they revert to a type of cell that has many of the similarities of the cells in the chorionic epithelium. This was his starting point in working out his problem. He later found the chorionic epithelium susceptible to the toxic effect of lead (producing abortion in pregnant animals) and from this reasoned that possibly the cancer cell would also be susceptible to the toxic action of lead.

CHRONIC GLAUCOMA*

WILLIAM H. WILDER, M. D.

CHICAGO

Glaucoma, particularly in its chronic forms, is one of the most insidious conditions that confront the physician. Because of this insidiousness and the complexity of its pathology it is one of the most important and interesting conditions that the specialist in ophthalmology meets.

In its acute form it presents features that should be recognized by the general physician, but frequently are not, while in its early and simple form too frequently it escapes the attention even of the specialist.

Because of the importance of early recognition of the condition at a stage when proper treatment may be of some help in checking its advance, I have ventured to suggest the subject for this program, hoping the discussion of its various phases may be mutually helpful.

In the first place, glaucoma is not a disease

entity, as its description in some of the books would imply, but is an abnormal condition or syndrome whose most important and essential feature is increased intraocular pressure or hypertension of the eyeball.

The division into inflammatory and non-inflammatory, acute, sub-acute and chronic or simple forms is the natural sequel of considering the condition as a disease and is confusing. Much to be preferred is the simpler nomenclature of congestive and non-congestive forms adopted by Elliot and other writers on the subject.

Clinically we divide glaucoma into primary and secondary forms. We regard as primary those cases in which the condition seems to develop without any preceding disease or injury. Secondary are those in which the condition comes on in the course of some obvious disease or injury. It is more than likely that in a strict sense all cases of glaucoma are secondary inasmuch as they follow or are caused by abnormalities of circulation or secretion within the eye that interfere with proper drainage and so lead to increased intraocular pressure.

More refined methods of examination and testing tend to establish the correctness of this, but for reasons of convenience we may still adhere to the old classification of primary and secondary as stated above and either of these may be acute or congestive, chronic or non-congestive.

As mentioned before, the prominent, indeed the essential feature of glaucoma is hypertension or increased intraocular pressure without which, according to some, there can be no glaucoma.

This would seem to reduce the problem to one of hydrodynamics and preservation of equilibrium of pressure. Most of the signs that we observe in glaucoma can be explained by the increased pressure or hypertony. The cupped optic disc, the peculiar and characteristic contractions and abnormalities of the visual fields, and in more advanced cases, the shallow anterior chamber, the sluggish, partially dilated pupil, the venous congestion, the impaired accommodation, the steamy and insensitive cornea, the rainbow phenomena, with all of which we are familiar, can be brought about by the hypertension. But the problem is more complex than this and involves the mechanism of secretion and excretion of fluids in the eye, and in this we have to reckon with osmotic pressures, transu-

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dation of serum from the capillaries, biochemical processes that may change the character of the fluids, and obstruction of outflow through the lymphatic and venous channels.

The mechanism for the production of the intraocular fluids and the maintenance of the normal intraocular pressure present a problem that is still unsolved.

Several rather conflicting theories are held by different observers. One of the most widely accepted is that known as the *secretory* theory which finds earnest advocates, among others, in Collins of England and Seidel of Germany. According to this the aqueous is secreted from glandlike structures in the ciliary body and Collins in bleached sections claimed to have demonstrated the presence of these glands, but observers such as Alt, Greef, Griffiths and others have disputed the correctness of the interpretation and think they lack the glandular structure and lumen that true glands would have.

The *transudation* theory holds that the aqueous humor is formed by transudation of the serous elements of the blood from the capillaries, chiefly of the ciliary body and to a less extent of the anterior choroid and iris. This fluid then circulates through the eye, partly into the vitreous by diffusion through the hyaloid membrane but more into the posterior chamber, then through the pupil into the anterior chamber, finding an exit into the canal of Schlemm through the spaces of Fontana in the pectinate ligament.

Both these theories assume a difference of pressure between the vitreous and anterior chambers to account for the forward current, but according to some critics who dispute the correctness of the idea that there is such a forward circulation of the aqueous, no demonstration of such difference in pressure in normal eyes has been made. (Hamburger, Magitot, Duke-Elder.)

The theory of *dialysation* holds that the intraocular fluids (aqueous) originate by a process of dialysis from the blood of the capillaries, predominantly of the ciliary processes, possibly in part of the iris, the dialysing membrane being the capillary walls.

Recently Duke-Elder in a monograph on "The Nature of Intraocular Fluids" in which are described elaborate physico-chemical experiments and observations, supports this theory. He

thinks there is a "continuous process of reciprocal exchange on either side of the capillary walls, determined by the difference in hydrostatic pressures; an osmotic flow in the opposite direction conditioned by the relative osmotic pressures, a diffusion out or in of the diffusible substances according to their differences of concentration."

This theory has evolved from the views advocated by Hamburger that no circulation of fluids takes place in the eye, but that its metabolism is carried on by a process of cellular interchange.

Duke-Elder thinks that "the existence of a circulation such as described by Leber cannot altogether be denied, but that the aqueous is practically without circulation under normal pressure conditions, although circulation to a minimal degree may be imposed upon it secondarily. Such a circulation in mass might be brought about by contractions of muscles of the eyeball. He speaks of it as an ebb and flow throughout the eye with a tendency towards diffusion from the iris and ciliary body to the angle of the anterior chamber.

Causes of Glaucoma. A knowledge of pathological anatomy assists in the study of pathogenesis. In this subject, the lack of material in the earliest stages of glaucoma increases our difficulties. Most of the glaucomatous eyes that come to section are those in the latest stages and we cannot be sure that the conditions found are those of cause or effect.

I assume we are all familiar with most of these changes. The shallow anterior chamber, the filtration angle blocked by the root of the iris, the atrophied iris, the swollen ciliary processes, the edematous steamy cornea, the engorged ciliary vessels, the cupped optic disc, the cavernous atrophy of the optic nerve are some of the signs that are observed either during life or after section of the eyeball. But it is difficult to answer the question: "Are these the cause or the effect of the increased intra-ocular pressure?"

There is little doubt that age is an important factor in the etiology. It is a common observation that most cases of glaucoma occur in middle and late life and statistics confirm this. For instance, in the analysis of a series of 1,032 cases of primary glaucoma Haag found that 4 occurred in the first decade of life, 10 in the second, 26 in the third, 74 in the fourth, 176 in the fifth, 288 in the sixth, 329 in the seventh, 116 in the eighth and 3 later.

These figures are in accord with the observations of Priestly Smith on a series of 1,000 cases collected from the practice of a number of surgeons. But in what way does age influence the intraocular pressure? Priestly Smith has shown that the lens grows larger with advancing life while the size of the eyeball remains the same or possibly becomes somewhat smaller. He claims to have demonstrated that the ciliary processes are more prominent and bulky in the old than in the young. Because of this increase in size of ciliary processes and lens, the circumferential space is narrowed so that fluids cannot so readily pass from the vitreous into the aqueous chamber. In consequence the lens and swollen ciliary processes are pushed forward against the iris, the root of which blocks the filtration angle and thus impedes or stops the outflow of fluids through the spaces in the pectinate ligament. Of course this would explain the shallow anterior chamber which is one of the well recognized signs of an established glaucoma.

Thickening or sclerosis of the fibers of the pectinate ligament as pointed out by Henderson may contribute to this result. In consequence of such thickening, which may be one of the manifestations of fibrosis incident to advancing life, the lymph spaces in this structure may be so contracted as to interfere with the flow of fluid through them into the canal of Schlemm.

Valuable as is the knowledge of these factors in the production of glaucoma the ultimate cause is not yet known. What brings about the enlargement of the ciliary processes? Is such an enlargement in the nature of an inflammatory condition and is there associated with it an increased secretion of fluids which the circulatory system of the eye is unable to take care of, thus raising the intraocular pressure? This condition would seem to explain certain cases of glaucoma, not infrequent, that come on in the course of low grade anterior uveitis, probably cyclitis, in which we can see with the slit lamp and sometimes without it signs of inflammation in the iris and ciliary body in the form of small particles of exudate in anterior chamber, or on the lens capsule or posterior surface of the cornea.

In such cases the character of the aqueous must be changed and it must have a higher albumin content that will impede its flow through the various channels. In such cases the anterior

chamber may be deep, and the filtration angle not blocked by the root of the iris. Such cases suggest the thought that many cases of glaucoma instead of being primary are secondary to some underlying conditions that a more refined examination might disclose.

What role do vaso-motor disturbances and nervous irritations, so common in the period of life when glaucoma occurs, play in the problem?

It is commonly observed that grief, anxiety and worry act as exciting causes of attacks of glaucoma. These emotional disturbances probably occasion alterations in the venous blood pressure and so may influence the quantity and character of the fluids entering the eye from the capillaries. The excitement caused by an operation on one eye may precipitate an attack in the other.

Do degenerative changes in the uveal tract, particularly in the ciliary body, bring about increased or altered secretions in the eye? What influence do various morbid conditions that result in auto-intoxications or infections have in bringing about such degenerative changes in the ciliary body?

These and similar questions are engaging the attention of students of the subject and have not yet been satisfactorily answered, associated as they are with some of the most intricate problems of metabolism. In this connection the words of Risley are worth recalling: "Glaucoma is a disease coming on at an age when wear and tear, harassing vicissitudes, misfortunes, exposures, overwork and vicious living have sapped the physiologic foundations of life; when infections have found entrance to the structure of the organism through the doorway of the epithelium; and when a variety of toxic autointoxic and other influences have set up vascular and cardiovascular disease, associated nephritis, uveitis, high blood pressure, etc. Glaucoma, in fact, rarely occurs in individuals in good general health."

DIAGNOSIS OF CHRONIC OR NON-CONGESTIVE GLAUCOMA

In the non-congestive forms of glaucoma, problems of diagnosis are present that are more difficult than those in the more advanced or congestive forms. This is notably the case in so-called simple glaucoma in which the intraocular pressure is not at all times measurably increased. These are the cases that frequently puzzle us in

diagnosis and raise questions as to treatment. Frequently they present little or no impairment of central vision; the onset of increased intraocular pressure has been insidious and its progress slow. The first intimation of anything wrong may be the discovery, in the routine examination, of a cupped disc, and then further examination elicits the glaucomatous condition. Or the patient may complain of dull pain, again of neuralgic pains in and around the eyes at times, blurring of the vision when reading as if his glasses do not fit. Such symptoms may indicate disturbances of accommodation from congestion of the ciliary body, or disturbance in the refractive power of the lens from increased pressure. It may occur in myopes as well as hyperopes.

Probably in these cases of so-called simple glaucoma the increase in tension is not constant, but intermittent. Before the days of more accurate testing of tension with the tonometer, there was question as to whether many of these simple glaucomas manifested any increased tension, it being too slight to be noted by digital examination, but careful tests with the tonometer reveal that, at times, increased tension exists.

It is in such cases that we must arrive at the diagnosis by the study of visual fields, the central vision, the appearance of the optic disc and a record of the tension as taken with the tonometer at various times.

The fields for white and colors should be taken not once but frequently to record the progress of the case. They should be taken by the same observer each time, and as far as possible under the same conditions as to light environment, background, etc., for there is no examination that admits of a greater chance for error on the part of both patient and observer than a perimetric examination of the visual fields.

We are all familiar with the various irregularities and contractions of the fields that are present in simple glaucoma, but certain features stand out prominently enough to make definite characteristics. The contraction of the field is usually, though not invariably, found on the nasal side. It may be more marked above or below, depending upon the pressure upon the optic nerve. It is my opinion that the position and shape of the physiologic cup, whether central or temporal, may determine, in the beginning, the character of the shrinking of the visual

field. It is well, therefore, to record in our histories, in routine examination of cases, a brief description of the position, size and depth of the physiologic cup for future reference and comparison.

As we know, the optic disc is the site of a foramen in the sclera and choroid bridged across by the lamina cribrosa, through the openings of which pass the bundles of fibres of the optic nerve. Fibers that emerge at the nasal side of the optic disc spread out to form the nasal half of the retina, the so-called "nasal fan." The papillo macular fibers proceed from the temporal half of the disc occupying a sector that has about one-third of the circumference of the temporal side of the disc, and supply an elliptical area that includes the region of the macula.

Curving above and below these fibers are others that emerge from the upper and lower temporal side of the disc and supply a larger elliptical area in the temporal half of the retina; those from above meeting those from below in a central horizontal raphé. These are called the superior internal and inferior internal arcuate fibers and the superior external and inferior external arcuate fibers, the latter external group supplying areas of the retina more temporalward than the former internal group.

Pressure upon these arcuate fibers that supply the temporal side of the retina accounts for the limitation of the field on the nasal side and with the increasing tension and the greater cupping of the optic disc the more marked will be the defect.

Unequal damage by pressure on the arcuate fibers above or below brings out the valuable sign known as "Roenne's Nasal Step" either at the upper or lower part of the nasal field depending upon whether the upper or lower bundle is most compressed. If these arching fibers are evenly pressed at the upper and lower margins of the disc there will be an even contraction of the nasal fields. If the bundle at the upper part is more compressed than at the lower side the contraction of the corresponding nasal field will show a well marked boundary, like a step, running along the horizontal raphé.

This sign can be elicited with large object perimetry by carefully passing the target back and forth for a few degrees over the horizontal nasal meridian.

Bjerrum pointed out that in early glaucoma

there develops a scotoma beginning at the blind spot and sweeping around the fixation point either above or below producing an arcuate, or in extreme cases, an annular scotoma. Sidel has described similar scotomas, winglike extensions of the blind spot, sickle shaped with their concavity toward the fixation point. To chart these defects small objects of 1 mm. or 2 mm. must be used either on a Bjerrum screen or with the excellent instrument devised by L. C. Peter, the campimeter. Lloyds' stereocampimeter is even more useful in cases that have binocular single vision. These signs furnish valuable testimony in the diagnosis of early glaucoma.

Sooner or later if the glaucoma progresses the blind part of the field is found to be in contact with the blind spot of Mariotte as first pointed out by Bjerrum.

With the continuance of the intraocular pressure the contraction of the visual fields proceeds until final blindness is reached. The color fields usually contract concentrically with the field for white, but atrophic processes in the optic nerve may alter the rule.

Tonometry. In simple glaucoma the pressure may not be great but it may be continuous. In some cases it may not be continuous, but may be intermittent.

One should be able to determine with a fair degree of accuracy the hardness of the eyeball from its compressibility and so be able to say whether the intraocular pressure is normal or abnormal. Formerly, ophthalmologists relied upon digital palpation for this purpose, but the modern tonometer enables us to get more accurate results than can be obtained with the fingers. Every ophthalmologist should have a reliable tonometer and should be skilled in its use; it is as important in his work as is the blood pressure apparatus in the work of the general physician. Not that he should neglect acquiring that skill in palpation that will tell him at once that the tension is normal or distinctly abnormal, which he should constantly use, but that he may have a more accurate measure of the tension than the fingers alone can give. Furthermore, a record of observations can be made so that comparisons can be made from time to time as to the condition of the pressure which could not be so well done with digital examinations.

With any form of tonometer errors may arise from inaccuracy of technic, and with any of

them, however carefully calibrated they may be, there will be variations in results arising from such conditions as rigid or flaccid cornea, slight keratoconus, high astigmatism regular or irregular, corneal scars, etc. It may or may not give us an accurate reading of the intraocular pressure in terms of millimeters of mercury, but it will from day to day or week to week, if properly used, give us on the same patient the relation of impressibility of the eye to intraocular pressure.

My preference is for the Schiotz instrument because of its lightness and accurate construction. The patient should be lying flat on the back, so that the face may be in the horizontal position. One per cent. holocain or butyn solution is used to cause anesthesia of the cornea. The patient is asked to fix some object on the ceiling so that the plane of the base of the cornea may be as nearly horizontal as possible and the instrument can be placed exactly vertical on the cornea, the foot plate occupying the exact center of the cornea. Failure to do this will give inaccurate readings. I have noticed that two may work together to good advantage, one holding the instrument and keeping the patient's gaze in the right direction, while the other takes the reading.

The instrument should be frequently tested on the artificial metal cornea to make sure that the indicator arm registers accurately at zero on the scale. The instrument must be kept in perfect condition so that the plunger glides easily.

Numerous observations seem to show that the normal limits of pressure seem to be between 15 mm. and 26 mm. on the Schiotz scale, but there may be individual cases where 28 mm. or even 30 mm. is normal.

TREATMENT

In the treatment of glaucoma we are confronted with the difficulties that arise from our lack of definite accurate knowledge of the etiology. Assuming the correctness of the statement of Fuchs that "genuine glaucoma develops only in an eye which has a predisposition to it," the question arises: What constitutes such a predisposition? If we knew exactly we should be on the way toward a rational prophylaxis. Lacking such definite knowledge we are forced to rely on therapeutic measures that are largely empirical.

Most of these measures aim at combating conditions that are supposed to influence the development of glaucoma. In general they are reasonable, for they include avoidance of excesses in eating and drinking, avoidance of worry, hurry, prolonged hours of work and exhaustion, etc., etc., directions not always easy for certain patients to follow.

Probably a reasonable amount of reading in short time periods is not injurious to the patient with non-congestive glaucoma, for the contraction of the ciliary muscle might promote the pumplike action of the scleral spur of Thomson and thus encourage the flow of fluids into the Canal of Schlemm. As to local therapeutic measures they are all directed toward the increased intraocular pressure and are intended to promote drainage from the eye. Myotics such as eserine and pilocarpine are unquestionably efficient to a certain extent. The salicylate of eserine seems preferable to the sulphate, for it seems less irritating, and for continuous use in simple glaucoma, pilocarpine muriate or nitrate is to be preferred because of its less irritating effect on the iris. The stretching of the iris from the marked contraction of the sphincter must draw the root of the iris away from the filtration angle and allow better circulation through that part. For the same reason the crypts and spaces of the iris are opened up, and probably are better able to absorb fluids from the anterior chamber.

One of the most important problems of treatment is that concerning operation, and particularly in non-congestive or simple cases. In congestive cases the evidence is clearer, for the accumulated experience of the masters in Ophthalmology from Von Graefe down to those of modern times speaks loudly in favor of operation to control the increased intraocular pressure.

The debate waxes warm at times in regard to which method has the greatest value, and iridectomy still seems to have the best of it, but there seems to be little dissent from the view that some operative measure is necessary to bring about an artificial drainage.

It is different in the case of simple or non-congestive glaucoma. Here we have a condition that does not present the immediately dangerous features of the congestive type, and there are those whose experience and skill are great who maintain the inefficiency of operation and rely

upon the power of myotics and general measures to maintain the proper equilibrium.

How are we to direct our way in the midst of such disagreement? It seems to me that the study of our cases by means of the tonometer and the visual fields must furnish the guide. It may not be amiss to refer to my own rule of practice in such cases.

If the case can be controlled and general treatment and regular applications of pilocarpine will keep the tension within normal limits, if the contraction of the fields does not continue, the central vision remaining normal, operation is not urged, but the patient is informed of the importance of regular observation of the case and religiously regular treatment. My observation is that cases that can be controlled in this way are few. If, in spite of general treatment and regular use of myotics, the records of the tonometer show increased tension at times, even if not great, and the fields slowly contract, or show enlarging scotomas, even if central vision is normal, operation is advised and urged, the patient, so far as his intelligence will permit, being made acquainted with the condition and its dangers.

The operations that have been proposed and championed for chronic glaucoma are so numerous as to indicate that the perfect one has not yet been devised. Iridectomy, which seems to be so efficient in acute congestive cases, seems much less efficacious in the simple form, and hence the variety of fistulizing and other operations that have been proposed. The operation of LaGrange has its strong advocates and is doubtless valuable in that it combines the iridectomy with a sclerotomy. Cyclodialysis has had its day but has failed to retain much favor.

Trephining when properly performed, probably yields as good results and as permanent as any, and the same can be said of the iris inclusion operations such as iridotaxis and iridencleisis. These latter operations produce the least traumatism of the eye according to my experience and their merits should be carefully considered in deciding on the method of operation. In spite of the prejudice against them in the minds of some surgeons. In any eye operation skillful technic is an essential factor for success and this applies particularly to operations for glaucoma.

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DISCUSSION

Dr. Harry Gradle: I saw Dr. Goldenburg's paper

some weeks ago and it was not the paper on which he talked today, and I am sure he is going to rewrite it before he publishes it. The question of acute inflammatory glaucoma is not one that engages our attention as much as the non-inflammatory or so-called simplex. In the first place, we see but few cases of acute glaucoma. In the second place, they are immediate, urgent cases and have to be dealt with in a hurry. We are either completely successful or completely unsuccessful. There seems to be no middle course. However, the continual burden is the simplex type. Last year I spoke of the use of the newer preparations in connection with treatment, adrenalin and glaucosan. Let me add to last year's report after having one year's very active experience. My work has been confined to adrenalin, omine-glaucosan and links-glaucosan. Adrenalin has been covered in the literature. Amine-glaucosan is an extremely powerful mydriatic to be used in the form of instillations in the acute inflammatory glaucoma. It has not proven successful in my hands. In a few cases I have had results—in the larger number I have had absolutely no results. The effects are not comparable to adrenalin and here, too, the effects are limited to the cases where anterior adhesions of sufficient density have not been formed. In chronic glaucoma I believe the adhesions are too firm to allow medicinal treatment to be of value. In glaucoma simplex I believe we have a very valuable aid in links glaucosan. It is by no means a cure-all. It is merely a valuable adjunct to lift us over the rough spots that we encounter in our treatment of glaucoma simplex. We should never start a patient on links glaucosan. They should be started on the general treatment Dr. Wilder has outlined. But when we come to a point where we cannot control the tension with that treatment, then call in links glaucosan, and almost invariably the tension of that eye will be reduced to normal or even subnormal point. The reduction is temporary, but it gives the eye a chance to recuperate and allow the medication to take a fresh hold and there are many cases in which we have been able to carry on by medication alone, aided by links glaucosan, which certainly would have come to operation. Personally I prefer not to operate upon a simplex provided the triad of symptoms can be controlled—the tension, the fields and the vision. As long as this triad can be held in statu quo by medicine operation is contraindicated, but when they begin to slip we must consider operation, and in these cases where they are beginning to slip links glaucosan has proven to be of value. If the slippage is great and the case goes on, links glaucosan will not put off operation by any means; but it will help, in those cases that can be controlled medicinally, and in those who have stepped beyond the border line. I recommend it to your use, and I believe you will be able to carry on a good many cases of glaucoma simplex without operation with its aid, which otherwise would have to come to operation with the questionable results that we look for.

Dr. Thomas Faith: It is my impression, after rather long observation, that we seldom if ever see a

case of acute glaucoma. Of course, we see cases of acute disturbances with elevation of tension, but are these cases of acute glaucoma? I have in my records the histories of something over twenty cases of acute hypertension with inflammatory symptoms which have been cured without myotics or an eye operation. None of these cases had any previous history of glaucoma or of a prodromal stage. These were all cases of low grade uveal inflammation and were treated with mydriatics and general measures directed toward the cause, which was usually, if not always, found to be septic. I believe the so-called acute glaucomas that are true glaucomas, in which the subsequent history bears out the diagnosis, are in fact acute exacerbations of a chronic glaucoma, and further, I believe if the history of these cases could be obtained there would practically always be a history of a prodromal stage. Fuch's statement which has been quoted by Dr. Wilder seems to me to bear out the above opinion. To me it seems that we have two types of glaucoma—chronic glaucoma without congestive attacks, and chronic glaucoma with acute congestive attacks, and these two conditions may be one and the same thing, under different circumstances, the one type lacking the factor or factors which precipitate the acute congestive attack. What the exact etiology of the disease is has not been determined, as both Dr. Goldenburg and Dr. Wilder have said. Anatomical conditions may predispose; changes in the blood chemistry through toxic metabolic processes or through disturbed endocrine balance may be either the predisposing or precipitating factors, acting through the blood and lymph circulation in a manner we do not understand. We do know that glaucoma seems to be a problem in edema, but further than this we have apparently not arrived. I am inclined to believe that a particularly careful inquiry into the previous history will help us very much in separating these cases into those which we recognize as real glaucomas, and those which are cases of uveal disturbances with increased tension; and to be sure, we must use every possible means at our command to rule out the presence of uveitis before labeling a case one of glaucoma. I believe the time will come when the term glaucoma will be discontinued. It is a misnomer, it has no descriptive significance and serves only on account of its long usage. The use of the term serves only to indicate the existence of increased intraocular pressure, which is a symptom and not a disease.

THE COMMON DRUGS USED IN THE TREATMENT OF SKIN DISEASES AND THEIR ACTION*

JAMES W. SKEBELSKY, M.D.

CHICAGO

Grace, rotundity, character and facial expression all contribute their part to beauty of person. However, the elegant superficial finish so essen-

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tial to the favorable first impression is furnished by an attractive, healthy, wholesome skin, which is perhaps the one most indispensable prerequisite to pure physical beauty. The old saying that "beauty is only skin deep," speaks volumes in a complimentary way for the epidermal covering of those whom the gods have favored with pulchritude.

To the laity the dermatologist was formerly known as a beauty specialist. It is only in recent years that he has lost his "beauty," but has retained the art of diagnosing all forms of dermatoses and the skill of treating same in a satisfactory manner. With the general practitioner the proverbial expression so frequently uttered: "It is or it is not eczema," has fallen into oblivion and is now mentioned only as a reminiscence of how poorly he was then trained. The recent graduates, however, are very well equipped to recognize all common skin diseases, but are somewhat perplexed as to what form of treatment to apply, and for that reason I shall endeavor in my discourse to review some of the common drugs used in the treatment of skin diseases and explain their action.

The treatment of skin diseases is both internal or constitutional and external or local. In some instances both internal and external medication may be indicated; in others, one or the other. A generation ago many of the disciples of the older dermatologists argued much in favor of the employment of external measures only, no matter what the nature of the disorder might be, but time and experience have demonstrated the frailty of their reasoning and it is now generally recognized that the purely local cutaneous maladies are few and far between. In many instances constitutional treatment is needed more for the purpose of increasing the bodily resistance of the patient than for any direct or specific effect it may have on the causative factor. Constitutional remedies may be grouped into three classes: 1. Hygienic measures; 2. Indirect medicinal agents, and 3. Direct medicinal agents.

From the standpoint of prophylaxis the first of these is by far the most important. Properly selected food, thoroughly masticated, moderate exercise, plentiful amounts of pure soft drinking water, sunny living rooms, well-ventilated sleeping quarters, abstinence from alcohol, tobacco

and coffee all tend to promote the good health and the general wellbeing of any individual. The nearer we approach this ideal state of affairs the more successful we shall be in combating the physical disabilities, cutaneous and otherwise, of our patients. The average person eats too much food of high caloric value, takes too little exercise, and drinks too little water, and therefore, becomes an overheated human furnace subject to explosions. However, to lay down hard and fast rules regarding exercise is somewhat difficult. The majority of us recall with a smile the experience of a distinguished colleague who advised a new patient that all he required was a moderate amount of vigorous exercise, only to discover later that his patient was an instructor in physical training. Alcohol is detrimental in practically all cutaneous disorders, and tobacco, coffee and tea, even in moderate amounts, are apt to do harm, and seldom, if ever, do good. There are no specific drugs in the treatment of skin diseases, but when properly used some of them act almost like a specific. Under the heading of internal treatment I shall mention the following remedies which work admirably: cathartics, alkaline diuretics, salicylates, quinine, arsenic and its compounds, mercury and its compounds, iodides, bromides, and adalin-luminal.

Cathartics and Alkaline Diuretics. In the majority of acute congestive disorders of the skin the use of both cathartics and diuretics is indicated. The saline preparations, particularly magnesium sulphate, and citrate, and sodium phosphate are very valuable. The former is best administered in small amounts of water sweetened with glycerin and flavored with lemon juice, and given on an empty stomach. In chronic constipation so common in women, and in men of sedentary habits, nothing is so satisfactory as cascara preparations, and particularly cascara evacuant. Russian mineral oil, which acts principally as a lubricant, has met with wide popularity in this country. Of the alkaline diuretics, sodium citrate and sodium acetate are probably the best. The use of fancy vehicles in compounding these prescriptions should be obviated, when ordinary peppermint water will answer the purpose.

Salicylates. In the salicylate group I find salol particularly useful in many cutaneous disorders associated with intestinal fermentation.

It is of special value in the forms of pustular acne where patients have an habitually coated tongue, a foul breath and defective digestion.

Quinine. Quinine is largely employed in cutaneous medicine for the generally recognized systemic effects, and if continued for any length of time it imparts to the skin a peculiar velvety feel, the latter disappearing on withdrawal of the drug. It is particularly useful in the treatment of dermatitis exfoliativa of the idiopathic type. When continued for a long period, be on the lookout for cinchonism. The forms of the drug commonly used are quinine sulphate or bisulphate.

Arsenic. This drug not only possesses the properties of a general tonic when taken internally, but also exerts a specific action on the epithelial layers of the integument, and the continued use of it may lead to over-stimulation of nutrition to the development of epithelial changes, which may foster if they do not actually incite, malignancy. The most common effects after the prolonged use of arsenic are diffuse or circumscribed pigmentation, with or without hyperkeratinization, erythema, desquamation or atrophy. Arsenic is particularly indicated in psoriasis, pytriasis rubra pilaris, pellagra, granuloma fungoides and sarcoids. Some patients have an intolerance for the drug, and it is always well to commence with small doses. When administered by mouth it should be taken after meals well diluted, in ascending doses. Newer arsenicals such as arsphenamine, sulpharsphenamine and neoarsphenamine possess specific spirillicidal properties and are therefore indicated where spirilli are the offending organisms.

Mercury. The mercury preparations are particularly valuable in the treatment of syphilis and lichen planus. In the latter disorder they constitute the most potent remedy at our disposal. Although most commonly employed in the form of protoiodide by mouth, mercury is far more efficient when administered intramuscularly. The intravenous route may also be employed. Next to intramuscular injections, inunctions are most valuable. Mercurosol, benzoate of mercury, salicylate of mercury and gray oil are the most potent.

Iodine and Iodides. At one time iodides were considered a specific in the treatment of syphilis,

but it should be borne in mind that these salts are not spirillicidal in their action, but serve only as an aid in the dissolution of gummatous infiltrations, and that either arsenic or mercury or both must be administered to bring about a cure. The iodides are particularly valuable in sporotrichosis, actinomycosis and blastomycosis. The potassium salt is the one most commonly used, although the sodium preparation is equally efficient and far less irritating to the gastric mucosa and to the renal epithelium. When the drug is employed by mouth it should be given after meals, well diluted and followed by a tumblerful of sweet milk or ginger ale. Whenever large doses of iodides are administered, an ounce of the potassium or sodium salt should be dissolved in one gallon of water,—this amount to be drunk daily in fractional doses at regular intervals.

Sedatives. The use of bromides is indicated for the relief of the tormenting pruritus, pain and insomnia accompanying a long list of dermatoses. Unfortunately if continued for an extended period for their calmative effect, they have a decidedly aggravating influence upon the cutaneous lesions. (Bromoderma, etc.) Opiates should never be used to combat itching, as they not only bind up all secretions, but render the patient more uncomfortable than ever by increasing the intensity of the pruritus. Adalin-luminal works very favorably in my hands.

I shall now digress from internal treatment and discuss the drugs used for external measures.

EXTERNAL TREATMENT

The skin is constantly exposed to parasitic attack. When one considers the number of micro-organisms that perpetually use its surface as a roosting place, its comparative freedom from disease is almost astounding. The local applications used in dermatology can be conveniently divided into five groups: 1. Cleansing agents; 2. Soothing and protective applications; 3. Antipruritics; 4. Keratolytics; 5. Reducing agents.

Cleansing Agents. The use of water, either pure or medicated by holding medicinal agents in solution or suspension, may be applied in the form of general baths or local ablutions. It may be employed continuously for days or for a few moments at a time. Soft water is to be used

when practicable and as near body temperature as possible. In acute inflammation of the skin, the use of pure water should be interdicted, and even when of proper temperature, soap and water washing may prove quite harmful. The medicaments incorporated in the water for bathing purposes are chamomile blossoms, potassium permanganate, starch and bran. Sulphur is often very efficacious in scabies. For cleansing purposes light oils by ablutions or in the form of compresses are very useful. Benzine may be used likewise if not repeated too frequently. Soaps, medicated or otherwise, are occasionally of service in the treatment of chronic cutaneous diseases. For cleansing purposes, old, well-dried castile soap is probably the best and the least irritating. When a keratolytic effect is desired, as in psoriasis, seborrheic dermatitis or acne vulgaris, a potash soap is very applicable, especially *sapo viridis*. Medicated soaps formerly used by a number of dermatologists resulted in disappointment, as experience has shown that they possess very little therapeutic value.

Soothing and Protective Preparations. The cardinal indications in the treatment of all cutaneous maladies are to relieve irritation and subdue the itching. These needs may be met by direct sedatives or anesthetics, the application of mild astringents, or the use of evaporating lotions in the form of dressing which will exclude the air. Commonly recourse is had to a lotion containing phenol, zinc oxide, starch and powdered calamine in water or in carron oil. This mixture is antipruritic, soothing, protecting and cooling, while a lotion containing small amounts of opium and lead acetate is sedative, astringent, cooling and slightly antipruritic.

Antipruritics. For the local treatment of pruritus a series of procedures and remedies may be utilized. *Water solutions.* These are more effective when hot, although sometimes they act better when lukewarm or cold, and include infusion of chamomile blossoms, lime water, cherry laurel water, liquor carbonis detergens. For isolated lesions various solutions may be used, as camphorated oil 1:10, camphorated alcohol 1:10, resorcin 2 to 5 per cent. in alcoholic solution, menthol 1 to 2 per cent. in alcoholic solution, mentholated oil 1 to 2 per cent. or carbolyzed glycerine (phenol 5 per cent. in equal parts of water and glycerine). Especially

advantageous are the alcoholic solutions of thymol $\frac{1}{2}$ to 1 per cent., coal-tar emulsions 5 to 10:1000 to which castor oil or glycerine are added to prevent too rapid drying. *Ointments.* The application of a fatty substance on a pruritic region sometimes suffices to bring considerable relief to the patient. Benzoinated lard, cerate of pure vaseline, or naftalan may serve this purpose. Needless to say it is often very advantageous to incorporate one or several of the antipruritic medicinal agents with salves or pastes. Use is frequently made of menthol 1, chloral hydrate and camphor aa 5 in a lanolin-vaseline base, or same proportions in an olive oil base. *Occlusive dressings.* Undoubtedly the mere fact of protecting the diseased surfaces from the air presents a valuable measure for the control of pruritus. Salves and pastes evidently owe to this a considerable share of their efficiency.

Keratolytics. These are medicinal agents which aid in softening and separating the external portions of the horny layer of the skin from its deeper connections. This group of therapeutic agents is applicable to chronic scaly dermatoses and to keratoses. Salicylic acid is the keratolytic agent par excellence. In small percentage, 1:100, it figures in many pastes and salves as a mordant and antipruritic agent. In stronger dosage, 5:100 in petrolatum, it constitutes the most potent detergent. (Psoriasis, ichthyosis and keratosis pilaris.) In benzoinated lard and castor oil 5:200, especially when immediately covered with an impermeable tissue, it displays its maximum activity. Alkalies, particularly potassium hydroxide, belong to the keratolytic group, but should be used with caution. The keratolytic action of soaps is due to the free alkali they contain.

Reducing or Oxidizing Agents. Such drugs dehydrate diseased tissues. Under this heading we include a series of extremely valuable dermatological remedies, which have the common feature of being more or less avid of oxygen. This property, according to Unna, accounts for their biological action. Weak reducing agents, or even strong reducing agents employed in weak dosage or for a short time, are keratoplastics, antiseptic, and relieve congestion and itching. Strong reducing agents are exfoliating, highly irritating and give rise to severe epidermal dermatitis.

The reducing agents in progressing order of their activity are the following: mercurial salts, resorcinol, sulphur and tar. The most energetic are undoubtedly pyrogallol and chrysarobin. I shall discuss only tar, resorcin and sulphur. *Tar* is not a panacea but a valuable adjunct in the treatment of dermatoses; it champions the cause and when properly used produces almost magic results. In strong dosage it acts as a reducing agent, and in weaker dosage is an excellent antipruritic. It is particularly indicated in the treatment of infantile eczema. The following formula has proven to be very successful in combating the so-called incurable infantile eczema:

Coal tar crude.....	2.
Zinc Oxide	2.
Naftalan	10.
Petrolatum qs	30.

The skill displayed in gauging the proper dosage makes the doctor smile and the patient satisfied. In the choice of excipients and combinations, the fact must be kept in mind that the wood tars of pine, juniper and oil of cade have an acid reaction, whereas, mineral or coal tar is alkaline in reaction.

Sulphur, popularly heralded as a blood purifier, has failed in its mission and resulted in disappointment, but it retains its deserved reputation as a scabicide. It is a remedy of great merit in all seborrheic conditions. Precipitated sulphur is to be preferred to the other compounds. It is irritating to the acutely inflamed skin, but is much better tolerated than tar in conditions of subacute or chronic exudates. *Resorcinol* is a drug which merits frequent usage. It is especially indicated in disorders of the scalp due to seborrhea. It may be employed in the form of ointments or alcoholic solutions in the strength of from 5 to 20 per cent. In condyloma acuminatum the application of pure crystals is very efficacious. *Euresol* (acetoresorcinol) is very valuable for itching scalp, dandruff and falling hair. The following formula works admirably:

Euresol	S.
Oleum ricini	2.
Alcohol	100.
Spirit myrciae	100.

Ichthyol is a drug which may be employed both for internal and external use. When first introduced to the medical profession by Unna it was accorded a royal welcome and universal claims were made for its use, but time and

experience have shown that some of the claims made for it were exaggerated. However, it is quite a valuable drug in the armamentarium of the general practitioner as well as the dermatologist. It may be employed in watery solution, in glycerine or with fatty bases. It may also be combined with Pasta Lassar. The dosage varies from 5 to 50 per cent. depending on the purpose for which it is used. As a reducing agent, 10 to 20 per cent.; antipruritic, 3 to 5 per cent.; antiphlogistic, 50 per cent. It may be administered internally in doses of 5 to 10 grains *t i d* and does not cause gastric disturbance. The indications for its use are: chronic eczema, sycosis, psoriasis and all conditions where a keratoplastic agent is desired.

HOW THE WOMEN'S AUXILIARY CAN MOST EFFECTIVELY HELP ORGANIZED MEDICINE*

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CHICAGO

National prophylaxis and national politics are two points of leverage in the promotion of public health and welfare and of the future of the medical profession in which the tasks for the Women's auxiliaries most immanently lie.

Under national prophylaxis come these main subdivisions of educational labor both by precept and by example:

1. Community education in sanitation:
2. Community education in necessity for periodic health examination:
3. Community education in what scientific medicine is doing for the public health and welfare—research and therapeutic advance:
4. Community education as to the danger of cults and charlatanism:
5. Community education as to the danger of false leaders, false doctrines and false reforms:
6. Community education as to the dangers of socialized medicine and community control of the practice of medicine:

Under national politics come these main subdivisions of political labor and education both by example and by precept.

1. Educational crusade against falsely premised legislation of which much is proposed in all

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communities at annual meetings or convenings of public governing bodies such as town and city councils, state legislatures and general assemblies and the national congress.

2. Educational crusade against such anti-scientific tendencies as will eventually remove the practice of medicine entirely from the hands of the profession and place it under political control of laymen.

3. Educational crusade against such anti-scientific and anti-welfare measures as permit the lay dictation of the practice of medicine.

Community education in sanitation must be done first and most ably by precept and by example just as the force of women's auxiliaries in politics is based upon the willingness of these auxiliaries to get out and to vote against those candidates who refuse to support the policies protective to both the public welfare and to scientific medicine as outlined generally a few moments ago. The ballot is the only understandable force in the world to the man who is in politics. If the candidates for office shall refuse to be also the candidates for those ideals and necessities for which women's auxiliaries stand, then it will be up to the women's auxiliaries, nay, it is up to them right now, to seek out and to support some candidate who will. This point is injected right here at the start because it is one of the deadly menaces hanging over us right now. Here in Illinois with the convening of the General Assembly at hand the vaster proportion of the citizens fail entirely to be cognizant of the sinister significance of the approaching introduction of the Anti-Vivisection Bill and the Sheppard-Towner-Newton Bill.

After the original Sheppard-Towner bill had been passed the majority of those who advocated it, and of those who endorsed it in those splendid organizations, their women's clubs, were shocked and mortified to discover that what they had voted for was not what they had thought it was, at all. In fact, the women who had thought they were on the way to help their more destitute or more isolated sisters in that most terrible hour of women's need, the time of maternity, discovered that they were not doing that at all. That instead of voting for care and shelter for mothers and children in this vital hour, that the votes were cast as the endorsements had been made for a measure that afforded many political jobs

and did not permit one cent of taxpayer's money to be spent for what was personal maternity care.

The trouble lay in the fact that the wrong sort of information—a genuinely false propaganda about this bill as set forth in women's organizations—had so stirred up the hearts and determined the heads of hundreds of thousands of women the country over that it was through this endorsement that the bill got by. One of the saliencies for the women of the country, and especially the Women's Auxiliary of the medical profession, to attack immediately is this question of utilizing the forum of women's operations for the dissemination of the dishonest kind of information about medical and sanitary matters. So important are the antivivisection bill and the long chain of vicious measures and objectionable tendencies, of which typical examples are the old Sheppard-Towner act and the new Sheppard-Towner Newton bill, that almost it might be urged that for the present it would seem vital that the women's auxiliaries should temporarily suspend all other activities to focus their forces upon combating this special section of existing and increasing evils.

The antivivisection bill may be given first attention as its appeal is that of freshness. Here is a new plaything for the idle and unthinking. Antivivisection has lain dormant to an extent for a few years, gathering its forces for the present attack—all the more inexcusable since the benefits to humanity by those very procedures that the antivivisectionists attack is assuredly incalculable.

A BRIEF FOR VIVISECTION

WHAT ANIMAL EXPERIMENTATION HAS DONE FOR MANKIND AND ANIMALS

Vivisection or animal experimentation is *absolutely indispensable* to progress in the prevention and cure of human disease, and accident.

Hundreds of thousands of American people living today owe their lives to advancement in medical science, progress in which has been made possible only through the medium of experimentation on animals.

Even the life of animals themselves has been made more secure through the medium of animal experimentation and vivisection.

Further progress in the reduction in sickness and mortality is possible and to a most impor-

tant extent depends upon further experimental procedure of this nature.

To retard the progress of medical research by the abolishment or unnecessary restriction of animal experimentation is needlessly to sacrifice the lives of hundreds of thousands of human beings—and also of animals.

Some conception of the very material advances that have been made in the prevention and treatment of diseases or results of accidents, advances that have been made possible chiefly through the medium of animal experimentation or vivisection, may be gained from the following summary:

1. Dog distemper: Discovery of vaccine as prevention and serum for cure of distemper in dogs, announced in England, November 29, 1928, as a result of five years' research conducted by the Mill Hill Laboratories of the Medical Research Council on behalf of the Field Distemper Fund and its subscribers.

2. Typhoid fever: Use of anti-typhoid serum during the world war effected a reduction of the deaths from typhoid fever to 200 out of 2,000 cases among 4,000,000 men mobilized, as against 2,000 deaths in 20,000 cases of typhoid and less than 150,000 men mobilized in the Spanish-American War. In other words, this serum reduced the death rate ratio in the world war from a probable 56,000 deaths and 560,000 cases, had the same ratio prevailed as during the Civil and the Spanish-American wars.

3. Diphtheria: Use of antitoxin has reduced death rate in diphtheria to seven and eight-tenths (7.8) per hundred thousand population, as against a previous mortality of as high as eighty-five (85.) per hundred thousand, or a reduction of about ninety per cent. These figures naturally fail to include any statistics as to the morbidity and permanent disability prevented by this discovery.

4. Smallpox: Vaccination, resulting from animal experimentation, has practically eliminated this scourge from civilized countries, thus short circuiting a disease of successive epidemics each of which killed millions and disfigured millions more. Indeed, true smallpox has become a rare disease today because of vaccination, and in cases where inoculation has been done, there is seldom if ever smallpox disfigurement.

5. Yellow fever: Findings of animal experimentation coupled with those from human sacri-

fice have practically abolished yellow fever, one of the scourges of the civilized world.

6. Plague: Through anti-plague serum, this disease with its death rate that ran as high as ninety (90) per cent., is no longer an element to be dreaded; in fact, is comparatively unknown. Animal and human experimentation demonstrated the cause and mode of transmission of this disabling and deadly disease, that cost the lives of hundreds of thousands yearly and brought complete or partial disability annually to hundreds of thousands more.

7. Malaria: Through experimental inoculation, ravages of this deadly disease have been reduced to the vanishing point. Its complete abolishment is only a matter of time.

8. Lockjaw: Anti-tetanic serum prevents the previously fatal lock-jaw resulting from operations and after accident, and is a specific for mortality from this infection.

9. Hydrophobia: Rabies vaccine has reduced the death rate from hydrophobia, previously uniformly fatal, to a fraction of one per cent., and the danger of possible infection from hydrophobia is daily minimized by the increasing administration of preventive serum to dogs, thus saving the dogs as well as the people.

10. Epidemic cerebro-spinal meningitis: Serum treatment has reduced death rate from ninety per cent. to less than 20 per cent., and minimized ensuing deformities.

11. Pneumonia, most deadly of diseases: Through animal experimentation a serum has been discovered that has reduced the mortality in type I of this much dreaded disease from 25 per cent. to $7\frac{1}{2}$ per cent., and a vaccine has been perfected that has reduced the mortality in all four types of pneumonia from 40.5 per cent. to 21.2 per cent., or approximately a 50 per cent. mortality reduction in all types of pneumonia has been achieved as a result of animal experimentation. Further experimentation is sure to bring about complete control, cure and prevention of this much dreaded disease.

12. Tuberculosis: Due to animal experimentation, to a large degree, tuberculosis has been reduced 50 per cent. in twenty-five years. The early diagnosis of tuberculosis is often made and the patient's life saved through the sacrifice of a guinea pig, when the diagnosis could not be made by any other method. What is the life of a thousand guinea pigs to that of a single child?

13. Antiseptic surgery: Discovery of antiseptics and opening up of miracles of modern surgery are due to animal experimentation. Emphasis must be laid upon the development of the abdominal branch of this section of medicine by which is made possible operative treatment of stomach, appendix, liver, gall-stones, intestines, pancreas, bladder, spleen, kidneys, generative organs: modern surgery of the brain and surgery of the chest, including surgery of aorta, lungs, heart, esophagus, etc.: in fact, made possible all the wonderful results of modern surgery, and a saving of thousands of lives annually and incalculable pain, invalidism and poverty.

14. Compound fracture: Reduction of death rate after compound fractures from sixty-six in a hundred to two or three out of a hundred, or a reduction of 97 per cent.

15. Ovariectomy: Reduction of death rate from sixty-six out of one hundred to merely two or three out of one hundred, or another 97 per cent. reduction. What a debt of gratitude the women of the world owe to animal experimentation in having made possible this great life-saving from surgical operations peculiar to their sex.

16. Post-operative mortality: Reduced to a negligible factor in such conditions as hernia, tumors and amputation of the breast.

17. Blood transfusion: Through animal experimentation has been perfected a method of direct transfusion of blood from person to person. Blood transfusion saves thousands of lives annually.

18. Goiter: A practically safe operation for this condition has been developed with the aid of animal experimentation.

19. Malta fever, formerly a scourge in Malta and Mediterranean countries, India, China, the United States, Brazil, and the West Indies has been almost completely abolished.

20. Maternity mortality: Childbed fever reduced from ten out of every one hundred mothers to less than one in one thousand.

21. Syphilis: Discovery of remedy to protect innocent wives and mothers and unborn children as well as others in the community at large from the horrible curse of syphilis. The presence of syphilis in patients is now discovered in ten cases where formerly it was discovered in

only one. This advance in diagnosis is attributable to animal experimentation.

22. Sleeping sickness: Through experiments on animals our knowledge of the pathology, methods of transmission, and the means of treatment of the fatal "sleeping sickness" has been obtained. Because of the information thus gained successful treatment of this disease is now possible.

23. Glandular therapy: Discovery of the mysterious functioning of various endocrine glands through the medium of animal experimentation has developed information and has brought to the women of this country incalculable relief from suffering from many diseases and conditions incidental to their sex. Millions of women are now spared unnecessary suffering, thanks to animal experimentation.

24. Animal scourges: Knowledge of animal diseases, their causes, treatment, cure and prevention, have been greatly advanced chiefly through the medium of animal experimentation. Such animal diseases as tuberculosis, rinderpest, anthrax, glanders, hog cholera, chicken cholera, lumpy jaw, among others, some of which are conveyable to man, are being overcome successfully through the medium of this experimental service. If the suffering dumb creatures could but speak, they, too, would pray that this good work should continue unhindered. The number of their own kind sacrificed is indeed small as measured against the number of their own kind benefited.

Prevented a More Costly War.—Animal experimentation has provided vaccins, bacterins, and antitoxic serums; it has aided in the development of new methods of surgery and of reliable means of diagnosing infectious diseases; it taught us how to use gases during the war and how to defend our soldiery against them. In the absence of such knowledge the recent war would have cost additional thousands of lives and would have produced many additional thousands of cripples.

Basic Knowledge.—Animal experimentation has resulted in the following basic knowledge: Circulation of the blood; capillary circulation; the vasomotor mechanism; functions of the nervous system: the flow of chyle in the lacteals; the passage of chyle through the lymph ducts into the venous circulation; the nature of the diges-

tive fluids and chemical transformation of food through their action; functions of the liver, lungs, kidneys, and other organs; the reaction of the cells to various kinds of stimuli; significance of the endocrin glands; nature of inflammation and other pathological processes; and numerous other discoveries in physiology, pathology, and biochemistry.

Action of Drugs.—Experiments with live stock have contributed richly to the current knowledge of drugs and their uses and to the precise information we have of the therapeutic, physiologic, and toxic actions of the innumerable substances from which our useful drugs have been selected.

Without specific knowledge of how drugs act on the body as a whole, or on special parts of the body, and whether their action is immediate or cumulative, the death rate among persons and animals would be multiplied, and the greater losses among the latter would be a serious economic disadvantage.

In April, 1914, when Mr. Rockefeller gave \$1,000,000 for the extension of the work of the Rockefeller Institute to include a study of animal diseases in a laboratory to be established in New Jersey, the antivivisectionists persuaded the Governor of that state to veto the bill authorizing this eminently humane work!

25. Cancer: A rapidly increasing disease awaiting solution. This disease will be conquered eventually through knowledge acquired from animal experimentation. Among women in this country one out of every seven die from cancer and, therefore, anything that will assist in eradicating cancer should be hailed as a civic necessity and should be encouraged to the utmost by all women as well as by all men. As animal experimentation is essential to attainment of requisite knowledge, it stands to reason that all right-thinking people should foster rather than attempt to disparage the proper conduct of such investigational studies.

In the light of past accomplishments and with awareness of that which is yet to be done, who is there among us who, having love for his fellow men, dare to stay the hands of those who are attempting to lift the curse of disease or aftermath of accident from the shoulders of his fellows? If there be any such inhuman creatures, enemies of our children, of humanity in general and even of dumb brutes, let them stand up and be labeled. Upon these persons, should they be

successful in staying the march of medical progress by placing barriers against essential experimentation upon animals, must rest the responsibility of human lives needlessly sacrificed, and of dumb brutes condemned to suffering.

That there are such misguided persons is a community misfortune. They are commonly known as "anti-vivisectionists," but the evil they inspire and the mischief they do is beyond calculation.

Although much has been accomplished, much more remains to be done. Cancer, infantile paralysis, cerebro spinal meningitis, pneumonia, influenza and malaria are among the devastating diseases that are yet to be conquered. The hope for early victory hinges chiefly if not wholly upon further animal experimentation.

As opposed to the extraordinary list of triumphs for humanity, compare the "achievements" of the anti-vivisectionists:

CRIMES OF OMISSION CREDITED FOES OF ANIMAL EXPERIMENTATION

1. Not a single life has been saved by efforts of antivivisectionists.

2. Not a single beneficent discovery has been made by them.

3. Not a single disease has been abated or destroyed or cured by them, either in animals or in man.

4. All that they have done is to resist progress—to spend \$500,000 in thirty years in Great Britain alone, and millions in the United States and elsewhere, and to conduct a campaign of abuse and gross misrepresentation, from which the harvest is easy to prognosticate from present results.

5. They care apparently little or nothing for the continued suffering and death of human beings, or the grief and not seldom the ensuing poverty of their families; provided that twenty-six out of every thousand dogs and cats, monkeys and guinea pigs, mice and frogs experimented on shall escape some imaginary physical suffering. Somehow, antivivisectionists fail to appreciate the fact that millions of animals are spared much suffering as result of animal experimentation.

6. They insist, therefore, that all experimental research on animals shall stop and—astounding cruelty—that thousands of human beings shall continue year after year to suffer

and to die, to become invalided and often not only burdens to themselves but economic liabilities to the community, their families and society.

VIVISECTION BRIEFS

If the scientists who experiment on animals were the cruel, cold blooded butchers pictured by the anti-vivisectionists, even so, yet the animals used by them would be given the greatest possible comfort, and the greatest possible relief from pain and shock and the greatest possible after-care *because the success of the experiment would require that very consideration.*

* * *

Every one who has had his life saved by an abdominal operation should realize that the operation would have been impossible and he would be dead if animal experimentation had not developed aseptic surgery. This applies to many of the infectious diseases, formerly fatal and now amenable to specific treatment, made possible by animal experimentation.

* * *

One horse furnishes antitoxin which saves thousands of human lives—and the horse continues to live with more comfort and better care than many humans about whom anti-vivisectionists do not worry.

SHEPPARD-TOWNER-NEWTON BILL

Although the Sheppard-Towner Newton bill has a few more furbelows on its skirts than did the Sheppard-Towner Act, so clever was the hoodwinkery with which the original Sheppard-Towner Act was forced down the throats of the women that a very brief resume of the act cannot fail to be of interest. I should not in all truth use the phrase "forced down the throats of the women," for so prettily was the mess meringued and jellied that the women not only swallowed it whole but actually clamored for more, and are still clamoring as this new business of the Sheppard-Towner-Newton bill testifies.

THE SHEPPARD-TOWNER ACT FAILS TO GIVE FOOD,
SHELTER, CLOTHING, MEDICINE, OR MEDICAL
CARE FOR ANY MOTHER OR ANY CHILD

Nothing material is given to needy mothers or children. No Maternity Hospital can be built anywhere with any part of the funds. A physician attending a destitute mother could not use five cents of the fund for medicine. No food, clothing, shelter, or hospitalization, medicine or medical care is provided for in the Sheppard-

Towner Act. Not a bed for a single mother or a bottle of milk for a single baby is provided. The entire fund goes for administration, "investigations," reports and gratuities to states which agree to let a Federal Board do what they have never given the Federal Government legal power to do under the Constitution.

The principle of Federal State Aid as a means of financing Public Health work is an unsound financial policy. Under the provision of the Sheppard-Towner Act the Federal Government controls the expenditure of State Appropriations.

The ability of the Children's Bureau to dictate and largely control the appointment of the head of the Children's Bureau in each state, as well as all of the public health nurses, district superintendents and others, resulted in the organization of a large body of salaried employes appointed and largely paid by a federal bureau, yet working under a state department of which they are to a large extent, independent. Such a condition produces friction and confusion in public health work, and makes possible the development of a political machine under the control of the Children's Bureau.

With the exception of those activities which are clearly national in character, such as quarantine and the regulation of inter-state commerce, and the like, public health work is a function of the state and local governments and should be paid for out of state and local funds, and directed by state and local officials. The furnishing of instruction or care to mothers or any other persons needing such instruction is just as much a function of local government as is the providing of food and clothes for the destitute. The assumption and exercise of these functions by the Federal Government is an invasion of the legitimate activities of the state.

MATERNITY EDUCATION SHOULD BE DIRECTED AND
SUPERVISED ONLY BY PHYSICIANS

The problem of reducing maternal and infant death rates is largely a medical problem. Whenever it pleases, the Sheppard-Towner Maternity act authorities can work entirely under lay direction and independent of medical control.

Sheppard-Towner Act is an inductor of the practice of obstetrics to the rule of thumb of political chicanery and machine manipulation.

It is also a fundamental process towards the eventual establishment of a permanent lay dic-

tation of the practice of medical and surgical science.

The Sheppard-Towner Maternity Act has achieved a certain amount of favor, or at the least of toleration, principally from two classes of people. In the first class may be placed those who are to benefit politically, either directly or indirectly, by this Machiavellian piece of legislation. In the second class are those who know nothing about the actual content of the Sheppard-Towner Maternity Act, but are finely misled by the name and by certain rather emotion-reflexes aroused unconsciously in the average mind by the word "maternity."

The political beneficiaries of the bill know that its intent, content and portent are pork barrel from bung to ballast. The protesting but tax-paying citizens have a bland idea that in some blanket fashion this Sheppard-Towner Maternity Act intends to dole out adequate care and shelter to mothers and children in poverty stricken homes, where maternity is almost perpetually the order of the day and where the necessities of decent living are not.

Now that this is exactly *not* what the Sheppard-Towner Maternity Act has any intention of doing is exactly what the average citizen of the United States does not know and has pretty carefully been kept from knowing. That the Sheppard-Towner Maternity Act does intend to put upon the tax payer's bounty list herds upon top of herds of investigators, inspectors, record keepers, red tape winders and political heelers of any creed, sex, race or color, who will be legally entitled to know as many intimate details about a man's wife as he does himself, and to describe this knowledge on the public documents of the country, is exactly what the average citizen does not know; that under the mask of education as to what maternal care should be, this Act limits its benevolence to paying the salaries to scouts, sleuths and maternal secret service is another item in what the citizen is not being taught about the Sheppard-Towner Maternity Act.

The Newton Bill, better designated the Sheppard-Towner Newton Bill, is worse than the original act.

OBJECTIONS TO THE NEWTON BILL

The Newton Bill is the most despotic legislative measure for the debauchery of democracy's

rights ever perpetrated against the constitution of the United States or the welfare of any nation.

Powers and principles involved in this grant are of a scope that will cumulatively deliver the constitutional rights of the country, the states, the community and the individual home into a communistic thralldom as terrible as any slavery ever visited upon darkest Russia during the rule of the royal Romanoffs. Such activities on the part of a group of selfish, misguided politicians, preying upon misinformed idealists, strike at the very root of what democracy means: of what the United States stands for; of what the constitution of the country represents, and of what, since the earliest settling of the country, patriots, both men and women, have fought and died for. That this tremendous sacrifice of ideals, principles, faith and persons should be thus discounted for the sake of a few idle, ephemeral theories that have been often tried since civilization began, and as often discarded through their own inherent weaknesses, is unthinkable.

What is this "Newton Bill"? Dissected, it resolves itself into an expansion of the Sheppard-Towner bill, all dressed up and intending to go ruthless, prying, devastating authority into the most sacred rights of the home, the family, and the individual. Giving the lie to its early promises of "No extension asked" and expiring in June, 1929, the iniquitous Sheppard-Towner bill, masquerading as an humanity at the outset and battenning upon the credulous imaginations of citizens who felt that by this legislation they might evade some of their civic responsibilities and abet the humanities, the Sheppard-Towner Bill puts forth new life and extends its grasp in the so-called Newton Bill. All that has ever been used in criticism of the Sheppard-Towner Act should, to be truthful, be enlarged and detailed and emphasized to at all cover the harm that will emanate from the Newton Bill. The simple clause, "and for other purposes," is as broad as the seven seas.

The Sheppard-Towner Act was a rare old haridan of legislation. Exposed in true colors the bill was repudiated. Now, bedizened anew, but the same old Bill still, it reappears as the Newton Bill. Scratch the surface ever so slightly and there appears beyond doubt the personality of the same vile debauchee of sacred rights.

Briefly considered, the facts are these. The Newton Bill, House of Representatives Bill No.

14070, introduced May, 1928, by Representative Walter H. Newton of Minnesota. This bill proposes that the United States commit itself and embark upon a permanent policy for doing certain work in individual states, whereas constitutional authority and practice have, until now, held federal action limited to interstate responsibilities.

The Children's Bureau of the Department of Labor will inherently by this bill be the ruling power in the United States. This bureau, headed by one woman, will become the most despotic influence in the country, imposing a yoke that will annually become more unbearable in its crushing burdens.

The provision in the Newton Bill that federal money may be expended at will and at the whim of a single bureau officer in cooperation with "local associations or individuals" (extragovernmental individuals) brands the entire proposal as a gold digger's phantasy. The money which the Newton Bill proposes in this fashion to appropriate is from tax collections, of which 95.83 per cent. comes from twelve states.

Complete statistics of income for the year 1920, made public Oct. 1, 1922, show that (95.83) ninety-five per cent. of the total tax was paid by twelve states. Out of this ninety-five per cent, of the total specific percentages included:

New York	23.69
Pennsylvania	12.13
Illinois	8.68
Ohio	6.76
Massachusetts	5.82

Total..... 57.08

Michigan, Indiana, Iowa, New Jersey,

Missouri, California, Maryland..... 38.75
95.83

This leaves thirty-eight states to pay 4.17 per cent. of the taxes from which their profit on the Sheppard-Towner appropriation is easy to figure. For these thirty-eight states "Federal Aid" is a gift indeed. *Illionis is not one of the 38 to profit, but one of the twelve to pay! And in the list of those states that foot the bills, Illinois stands third. Only New York and Pennsylvania precede.*

The expenditure outline would rest not with the States but with the whim of one individual and not might be, but evidently is intended to be disproportionate among several states. It is

within the bounds of conception that Illinois contributing 8.68 per cent. as one of the twelve, might receive nothing at all in return. Whereas, states contributing little or nothing would receive maximum sums, if not the entire amount of the sum collected.

If possible the Newton Bill is worse than the old Sheppard-Towner Act as the one million dollars per year is theirs to distribute almost at will without let or hindrance from State Health Boards.

The Newton Bill is "permanent legislation" if passed, and gives this radical bureau that is always usurping both the provinces of the medical profession as well as the political rights of the states and people, a permanent campaign fund of \$1,000,000 a year for distribution among agencies that submit the national care of maternity and infancy by bureaucrats at Washington giving "long distance" or "mail order" treatments to mothers, via the government printing office, and setting "standards" for physicians and nurses that the social workers desire to promote.

This bill purports to be a health measure and if it is such it belongs in the United States Public Health Service, rather than as an appendix to the Department of Labor.

It is within the power of the Newton Bill to force the states to accept inefficient pseudo medical service, whether the states like it or not; for instance, Connecticut, Illinois and Massachusetts have never accepted the co-operation of the Federal Government under the Sheppard-Towner Act. Under the provision of the Newton Bill these states would have forced upon them the services of the Children's Bureau under the provision of partnership between the Children's Bureau of the federal department of labor financed by and for the spending of the money of the people of the United States. A group of uplifters in the State of Illinois or any other state may be using the money for or with a foundation, for example. With the stage thus set and the "fifty-fifty" appropriation feature satisfied, independent of state cooperation, the executive, legislative or judicial powers of the state could not prevent the operation of this amplified Sheppard-Towner Maternity Bill in Illinois or anywhere else—the legislature and the people notwithstanding.

The Newton Bill perpetuates the \$1,000,000.00

per annum fifty-fifty appropriation of money: continues the meaningless and ineffective provision against the invasion of American homes by the investigators and whisperers of the Children's Bureau. Such provision is meaningless and ineffective because it carries no penalty for such invasion and puts it up to the American citizen to protect his home from such invasion either by assault upon the invader or by the very expensive way of a writ of injunction.

The Newton Bill even goes farther than the Sheppard-Towner Maternity Act and provides for a partnership between the United States Government and any group or foundation, thereby carrying interference by employees of a federal bureau of a department of the United States government into the homes within a state, over the head of the state itself, by way of a private corporation which is merely a creature of a state by reason of a charter. Through this bill the rights of the individual are nullified. A man or woman will find the political employee dictating as to private and personal liberties of a delicate nature.

The Newton Bill is subversive of the ideals, traditions and institutions of this country in that it expands the police power of the state to the point of exhibiting the proper exercise of the triune powers of government—executive, legislative and judicial, and vests all power in an individual or group of individuals, employees of a Bureau of a Department in the cabinet of the President, and bars the judiciary from restraining abuse thereof.

The Newton Bill is a contemptuous disregard of decency, as contained in the fifty-fifty partnership with busybodies over the determination of the people of a state as voiced by their representatives in the legislature.

The Newton Bill is a direct violation of the agreement of the proponents of the Sheppard-Towner Act. *In 1926 the proponents of Sheppard-Towner legislation agreed not to ask for a further extension of that act after a period of extension granted had expired.* It was said at the time it was not the intention of some of the proponents to adhere to the agreement and the introduction of the Newton Bill confirms these predictions.

In substantiation of this statement, consider some of the sweeping provisions of the pending Newton Bill.

1. *It is practically unlimited in the scope of its purposes.*

Its title is "To provide a Child Welfare Extension Service, And For Other Purposes." While it is true that the current bill provides an annual appropriation of \$1,000,000 "for paying the expenses of a Child Welfare Extension Service in the Children's Bureau of the Department of Labor, which shall promote the welfare (?) of mothers and children and aid in the reduction of infant mortality," thus confining the expenditure of this particular appropriation to this particular purpose, that is really no purpose at all but one purely political, it must be noted that the title of the Act in the words "*and for other purposes*" permits future extension of this service in other fields by simply changing the scope of services as expressed in the body of the Act.

There is no provision in this Act as to how this annual appropriation shall be allotted to the several States, excepting that it is provided that "not to exceed \$50,000 shall be expended by the Children's Bureau in the District of Columbia." This would permit the Washington Bureau to expend the other \$950,000 wherever it pleased, all in one State if it so desired, or nothing at all in those States that will have contributed, etc.

2. *The United States Children's Bureau may set up child and maternity health services in any State or municipality INDEPENDENT OF THE LOCAL OFFICIAL HEALTH AGENCIES, under the provisions of the Newton Bill.* The proposed law reads: "That of this amount (\$1,000,000) not to exceed \$50,000 shall be expended by the Children's Bureau in the District of Columbia and that the remainder shall be expended *either independently* or in cooperation with the State or Territorial agencies responsible for or engaged in the promotion of the health or welfare of children, or through such state and territorial agencies, with county or municipal agencies engaged in child hygiene or child welfare work." Note that the breadth of this clause would make it legal for the expenditure of these sums to be directed in any channel—not one penny of which could legally be made to buy a dose of medicine, a shred of clothing, a bite of food, an atom of shelter, or a moment's professional care for any mother or any child. With this money the bureau could go into the banking, bakery, ship building, millinery or automobile business under pretense that it was

to benefit "mothers and children," if wished, as this freedom is sustained in the clause "or for other purposes." This is one of the most vicious features of this bill. It simply means that the constituted local health authorities may be entirely ignored by the federal agency in the set up and conduct of service. The service may be established wholly without regard to local agencies or their wishes. The conflict that this quite definitely assures is bound to result in a serious handicap to all legitimate child health and welfare service. The right to determine the program and to select the local agency to carry it on rests entirely with the Children's Bureau. The power that is thus placed in the Children's Bureau gives this group a strangle hold on all local health agencies so far as child health and welfare services are concerned and permits lay dictation or distortion of medical service. No self respecting health officer in this country will countenance this attempted federal invasion of the service he is sworn to administer. It behooves the medical profession and the public generally to keep close touch with any such threatened malign development.

Again let it be emphasized that the Newton Bill is wrong in principle. The principle of Federal State Aid as a means of financing public health work is an unsound financial policy.

Maternity education should be directed and supervised only by physicians. The problem of reducing maternal and infant death rates is largely a medical problem. Under this bill, whenever it pleases them the Children's Bureau authorities can work entirely under lay dictation and independent of medical control.

If enacted into law the Newton Bill will amount to a fundamental progress towards the eventual establishment of a permanent lay dictation of the practice of medicine and surgical science.

The intent of the Newton Bill is to do away with the restrictions thrown about the Sheppard-Towner Act and give to a bureau in the Department of Labor that has nothing to do with public health, a free hand, not only in the matter of educating mothers and, presumably, their attending physicians both in matters pertaining to childbirth and in all other health matters as well, for it is not possible to separate the two.

The amount of money the bureau may spend in any state, or whether it has to spend any

money in any particular state, and the safeguard at the present time thrown around projects to be put out by the maternity board, are very much reduced by the Newton Bill.

Under the Sheppard-Towner Act any procedure proposed by the Bureau must be approved by the Surgeon General of the United States Public Health Service, the chief of the Children's Bureau and the commissioner of education.

Now, under the Newton Bill this safeguard disappears. This power of veto is nullified. What restriction there is upon the head of the Children's Bureau, the dangerous despot to which previous allusion has been made, lies upon a so-called advisory board—a check rein in name only. This board will have an advisory function but no real authority and with this board the bureau may or may not consult, as it sees fit.

The Chief of the Children's Bureau will be chairman of the board and appoint five of its nine members. The Surgeon General of the United States Public Health Service, the director of extension work of the Department of Agriculture and the Commissioner of Education are the other three members.

Under the Sheppard-Towner Act the federal government has been able to control in some measure health activities in the several states by virtue of appropriations the government has been in a position to make or withhold. Under the Newton Bill, if enacted, the bureau will be in a position to parallel or contravene or cut and slash, in this field, as it may desire.

This proposed act becomes "permanent legislation," if passed. It gives the radical group administering the United States Children's Bureau not only permanent but further autocratic power to usurp the field of the medical profession in one of its most important aspects towards public welfare. It contemplates a flagrant invasion of State rights that must not be tolerated. It is a distinct menace to locally constituted public health authority and threatens endless conflict between a self-centered Washington group of office-holders and local health authorities as well as with the medical profession, as such *it is not in the best interests of public health advancement and medical welfare*. It demands the active opposition of all the people.

This Bill, H. R. 14070, is now resting in the Committee on Interstate and Foreign Com-

merce and may be called up for hearing at an early date.

As an attempted invasion of State rights, the Newton Bill stands without an equal in the history of American legislation. It opens the way to further legislation which will eventually deprive all the States of their time honored and most cherished privilege of local self-government. It would establish a precedent for federal regulation in every field of local human endeavor.

The Sheppard-Towner Act and the pending bill have, however, some points in common. Neither of them lays down any line of demarcation between the welfare and hygiene of mothers and children, and the welfare or hygiene of the rest of the people, so as to limit operations under the act to a clearly defined field. Neither the Sheppard-Towner Act nor the pending bill contains anything to show why money appropriated for health activities should not be spent under the direction of the United States Public Health Service, which was organized for such work, instead of under a bureau that must duplicate a considerable part of the medical corps already organized and functioning in the Public Health Service, if it is to work effectively.

The average citizen does not know what, under the mask of "Education as to what maternal care should be," this Act intends to do.

The old Sheppard-Towner Act expires by limitation June 30, 1929.

As the protagonists of the old Sheppard-Towner Act concede that this vicious piece of legislation is now practically dead, these propagandists have proceeded to raise it by proffering this ghost that is stronger than its original entity, is known as the Newton Bill (better designated as the Sheppard-Towner Newton Bill, a bill to provide a Child Welfare Extension Service and for other purposes). This bill has the poignancy and force of a phoenix newly risen from the ashes of public wrath that consumed the Sheppard-Towner Act and its iniquities. Let it be repeated that the Sheppard-Towner Newton Bill aims to perpetuate the principles of the old Sheppard-Towner Act but on a much broader basis. It authorizes an appropriation of \$1,000,000 annually for a Child Extension Service in the Children's Bureau in the Department of Labor.

The difference between the old Sheppard-

Towner Act and the new properly designated Sheppard-Towner Newton Bill indicates the extraordinary reaching out for power acquisitiveness of the pending legislation. The Sheppard-Towner Act is self limited; the Newton Bill seeks to establish a permanent policy. The Sheppard-Towner Act recognizes the right of every state to control health activities within its own borders; the pending bill would actually authorize the Children's Bureau to carry on its activities independent of state agencies. The Sheppard-Towner Act defines the method for the distribution among the states of money appropriated under its authority; the Newton Bill is limitless in its interpretation.

Section 4 gives the inference that there is a plan to work with and upon individual children in the United States, except where specifically prohibited by the parent or guardian of an individual child; such a plan can operate only upon the assumption that the child is the property of the state. That is to be denied and should cause alarm to the parents of children and to all American economists. The family is the unit of government and should be closely guarded against inroads of social thought. Whenever such inroads shall have been quietly perfected, then our government will be seen to have abdicated in favor of a communist revolution—not a desirable thing.

The greatest need, legislatively speaking, in the United States today is decentralization of government at Washington. "America is the most law ridden country in the world. In fact, America is forced by law to do and prohibited by law from doing more things than had been prohibited or required in autocratic Europe before the war."

Bureaucracy is always a curse, and centralization a lethal menace under any conditions. Where the practice of medicine is concerned, it is fatal.

Briefly recapitulated, let the women's auxiliaries bear in mind these vitalities to be guarded against as destructive eventualities in public economics and the future, both of medicine and the public health and welfare, and national stability as the medical profession itself has concentrated. These Fundamentals include combating

1. Lay dictation and control of medical practice.

2. Endowed foundations entering practice of medicine.

3. Corporations engaged in medical practice.

4. Inimical medical legislation.

5. Political control and interference with medical practice.

6. Unrestricted activities of quacks with general public health.

7. Lay and semi-lay pay clinics for other than the poor.

8. Superseding of physician by overtrained nurse.

9. Health departments practicing general instead of preventive medicine.

10. Various other similar and correlated vicious tendencies. A plan for combating these evils through your Women's organizations may be thus analyzed:

1. Classification and centralization of the resources of the auxiliary in point publicity.

(a) Women engaged in research work of public interest.

(b) Women tangent to the lay press, the lecture platform, stage and other centers of public distribution.

(c) Medical women in the public eye, whose spoken or written word has a publicity value.

2. Establishment of general publicity media for news and feature material which shall tend to:

(a) Correct misinformation on medical subjects.

(b) Place the profession more conspicuously in the lay press.

(c) Present an adequate background for additional protective legislation.

3. Enlistment of active co-operation from the women's organizations in the state for the purpose of:

(a) Making the campaign an affair of every woman rather than of a committee.

(b) Securing for major news a state-wide diffusion that will exceed syndicate possibilities.

(c) Radio talks by doctors.

For the accomplishment of this, the Auxiliary must act as an educational committee. The "press agent" part of this auxiliary's duties include:

1. Preparation of feature articles for use in Club Magazines with a substantial circulation in Illinois.

2. Preparation of stories based upon current activities of the auxiliary that will be suitable for use by syndicates, press associations and city newspapers, and for adaptation by country newspapers.

3. Establishment of press contacts.

4. Preparation of material for use by members who will speak before clubs.

5. The general contact point between the lay women and the auxiliary in the State of Illinois.

6. Personal conference with women's organizations throughout the state at some time during the year in order to:

(a) Convince the membership of these clubs of the necessity for and the suitability of the campaign.

(b) Local problem analyzation.

(c) Establishment of procedure for the handling of local publicity opportunities.

(d) Enlistment of participation in campaign from the local branch membership.

7. Establishment of central bureau to provide speakers and to create opportunities for these speakers to discuss subjects worthy of and suitable for presentation in a popular vein to clubs.

8. Establishment of organization contacts to co-ordinate with the lay press, and the inauguration of popular "drives" on projects designated by the governing committee.

AGRANULOCYTIC ANGINA*

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Agranulocytic angina is not a common condition. Of late, however, cases have been reported more frequently, and, with better knowledge of the syndrome, it will be recognized still more often. The reported three cases have been seen in a little less than three months.

Case 1. Mrs. C., female, aged 32, of excellent health, has taken ill suddenly with fever and a sore throat. She was toxic; a gangrenous membrane cov-

*Read at a Clinical Meeting of Illinois State Medical Society in Cook County Hospital.

ered the tonsils and fauces. Diphtheria was suspected and antitoxin given, although repeated throat cultures were negative for Klebs-Löffler bacilli. A week later an otolaryngologist in council suggested Vincent's angina and topical application of neoarsphenamine. Vincent's organisms were not found. Patient did not improve. On the ninth day she developed arthritic pains. The joints were not hot or swollen. On the twelfth she had an acute circulatory collapse, from which she rallied. When seen by me on the fourteenth day she was profoundly prostrated, mentally lucid, and felt that the end was near.

The temperature was low, the pulse rapid and weak, and the systolic blood pressure could not be obtained. The lungs were clear. The entire left arm was enormously swollen, was not tender, and without any inflammatory signs. It did not pit; the radial pulse was weak, but present. The blood smear showed total absence of the granular polymorphonuclear leucocytes and a pronounced paucity of the white blood cells. She died four hours later.

Case 2. Mrs. R., female, aged 42, previously healthy, took ill suddenly with fever of 104° and a sore throat. Antitoxin was given on suspicion. Throat cultures were negative for diphtheria bacilli, and Vincent's spirilla. On the fifth day consolidation of the left lower base was present.

When seen by me in the hospital on the evening of the same day, the temperature was 104°; respirations rapid but no cyanosis; a greenish yellow flat membrane indolently spread over tonsils and fauces. The left pulmonary base was dull, with bronchial breathing and scanty rales. The patient was profoundly exhausted, of clear mentality, pulseless, systolic pressure not obtainable, and death took place seven hours later. The white blood count numbered 2,000 and the granular leucocytes were absent.

Case 3. Mr. W., male, aged 25, came down with a sore throat and high fever; very toxic; antitoxin given; treated as a Vincent's angina; no improvement. Throat cultures negative for Klebs-Löffler bacilli and Vincent's organisms; blood culture sterile. The blood showed a moderate secondary anemia, a white count of 1,200 with only 4 per cent. of polymorphonuclears.

When seen on the seventeenth day of the illness, he presented the picture of severe circulatory collapse and died a few days later in spite of repeated blood transfusion. He was also given neoarsphenamine.

All the three cases had in common: A severe gangrenous angina, a marked neutrophilic leukopenia, and a fatal termination.

This clinical syndrome was described by Schultz of Berlin in 1922. Its specific etiology is not known. Most cases occurred in women. Rotter's case and my third were in males. Dodd and Wilkinson reported a case in a child of eleven³ following the administration of .45 grams of neoarsphenamine. They collected 24 similar cases in adults. One case came on seven

weeks after a fracture⁴; another followed extraction of teeth.²

The bacteriology of the local lesion lacks uniformity. Vincent's organisms, diphtheria bacilli, strepto and pneumococci, and the bacilli pyocyaneus, were found. The blood cultures are more often sterile or show a variety of organisms.

The tonsils, pharynx, gums or any mucous membrane may become the seat of an ill-defined gangrenous necrosis with a total absence of any inflammatory reaction. The lungs often show a fibrinous, hemorrhagic, non-cellular exudate.

The blood and the blood marrow, even intravital, show a marked diminution or total disappearance of the granular element. The tissues lack all evidence of any cellular inflammatory reaction. They show some lymphocytosis and a marked proliferation of the plasma and endothelial cells.

Its pathogenesis is far from clear. At present it is presumed to be either an infection or an intoxication leading to destruction or exhaustion of the granular leucocytes in the blood and bone marrow.

The body, thus robbed of its defensive mechanism, falls easy prey to severe infections and any mucous membrane, always the habitat of various organisms, may become the locus minoris resistentiae.

Agranulocytic angina sets in with fever and a gangrenoulcerative lesion of some (commonly, however, oral) mucous membrane, parading as a diphtheria, Vincent's angina, or a so-called septic or streptococcus sore throat.

The regional glands, the liver and spleen may be enlarged, jaundice occurs. The white blood cells number from 1,200 to 2,000. Counts of 100 and even 8³ were reported. The polymorphonuclears are much diminished or absent. The red blood cells, hemoglobin, and blood platelets are not much altered. Cutaneous petechiae and even gross hemorrhages may, but rarely occur. Pulmonary consolidation often appears early, and death usually closes the picture in about 8 days with marked exhaustion and circulatory collapse. It may occur on the second day or as late as the sixth week.

Agranulocytic angina is overwhelmingly, but not invariably, fatal. Recoveries have been reported and relapses occur.

A gangreno-ulcerative lesion of any mucous membrane, when diphtheria and Vincent's

angina are ruled out, should arouse the suspicion of agranulocytic angina, and a leukopenia with a marked diminution of the granular leucocytes will make the diagnosis.

Arsenic, thorium and benzol may cause a similar blood picture, and a neutrophilic leukopenia, even associated with a stomatitis, may follow intensive x-ray exposure.

The aleukemic leukemias and the gangrenous stomatitis of an acute leukemia, lymphoid or myeloid, show a pronounced hemorrhagic diathesis; immature white cells are always present in considerable numbers, and extensive cellular infiltrations are found at autopsy.

Yet at times the differentiation of agranulocytic angina from leukemic states is difficult, nay, almost impossible. Petechiae and visceral hemorrhages may be present; some cells may even show the oxydase reaction and some lymphocytic infiltration may even be found postmortem in agranulocytic angina. Cases of sepsis with stomatitis and a neutrophilic leukopenia may be mistaken for agranulocytic angina, but the severe hemorrhagic diathesis, the thrombopenia, and especially the positive blood culture with the always demonstrable primary focus of infection make its recognition easy.

Infectious mononucleosis, the so-called glandular fever, usually a disease of childhood, occasionally occurring in adults,⁵ may with some soreness of the throat and the disappearance of the granular leucocytes resemble agranulocytic angina, but the respiratory catarrh and the marked leucocytosis easily lead to its true recognition.

The acute leukemias, sepsis with a neutrophilic leukopenia, and agranulocytic angina are regarded by the best students of the subject as distinct clinical entities, in spite of their many points of similarity.

Treatment is futile. Repeated blood transfusions have apparently only postponed, and for a short time only, the fatal termination. The newer arsenicals have been recommended. They have been etiologically responsible³ for a number of cases of agranulocytic angina, and are only mentioned to be emphatically condemned.

Our therapeutic hopes lie in the possible discovery of the cause and till then in some drug or measure that will enhance the feeble defensive attempts of the reticulo-endothelial system.

SUMMARY

1. Three fatal cases of agranulocytic angina are reported: two in females, one in male.

2. All three cases showed a gangreno-ulcerative angina with a marked neutrophilic leukopenia.

3. All treatment, including repeated blood transfusion, was futile. Arsphenamine and neoarsphenamine should not be used.

4. All three cases were diagnosed and treated as diphtheria, Vincent's angina, and streptococcus sore throat and their true nature not recognized till the blood was examined.

5. In a gangrenous lesion of any mucous membrane, where diphtheria and Vincent's angina were ruled out, the possibility of agranulocytic angina should be borne in mind and a blood examination made.

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DIPHTHERIA IMMUNIZATION CAMPAIGN*

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SPRINGFIELD, ILL.

The record of scientific endeavor in the recognition, control and prevention of diphtheria marks interesting chapters in the development of preventive medicine. When Loeffler in 1884 proved the diphtheria bacillus to be the specific cause of diphtheria, it was thought by many that this disease would soon be placed among communicable diseases which are easily controlled and prevented.

Toxin-antitoxin. However, it was not until 1913 after the research workers had acquired considerable skill in the preparation and use of toxin-antitoxin mixture, that the first attempt was made to actively immunize children against diphtheria. This was done by Behring. His investigations, however, were soon stopped by the war. The work was carried forward in New York

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City, where Dr. William H. Park of the City Health Department Laboratories had for some years been conducting studies similar to those in Europe. The results in New York City showed that the toxin-antitoxin treatment is harmless and that it gives a durable immunity. When these facts were definitely established, its use was advocated for the whole child population. The course of treatment consists of three doses given about one week apart. The effect is to produce what is known as an "active immunity." The immunity thus produced develops slowly, requiring a period of from two to six months, before the protection becomes effective, that is to say, before sufficient antitoxin is present in the body to protect the individual against diphtheria. This protection usually lasts for years, perhaps for life. While toxin-antitoxin is not 100 per cent. perfect, at least it immunizes 97 per cent. of the children during the years when they are most susceptible to diphtheria.

The Schick Test. By the use of a test devised by Dr. Bela Schick of Vienna in 1913, we have a simple and helpful means for ascertaining whether a person is susceptible to diphtheria. The Schick test was an outgrowth of the observation that if a very small amount of diphtheria toxin is injected into the skin of a person who has recovered from the disease, or is naturally immune, the toxin will be neutralized and no effect produced by the injection. If the individual tested is susceptible, the injection of toxin will produce a slight local irritation, shown by a small red spot.

The widespread use of this test has given us much valuable information regarding control measures for this disease. It has shown that infants up to six months are usually immune, and that children from 6 months to 6 years are in the age group of highest susceptibility to diphtheria. This group, therefore, is in the greatest need of toxin-antitoxin protection. The Schick test has also given us important data regarding differences in the susceptibility of social, racial and geographical groups. The test has also been valuable in revealing how effective the toxin-antitoxin mixture is in producing the desired immunity and in showing how long this immunity lasts. To make certain that immunity has been established, the test may be given 5 or 6

months after the toxin-antitoxin injection, for, as stated, it usually takes that length of time for the protection to become effective.

Eradication of Diphtheria. In spite of the fact that toxin-antitoxin will prevent diphtheria and a Schick test will discover the susceptibles, diphtheria continues to be the third cause of death in the United States for children under six years of age and the mortality in recognized cases is still 10 per cent.

Consideration of these facts makes our duty as physicians plain. We must educate parents to realize the value of these scientific achievements and the practical use of the same in their own families. We must urge that all children between the ages of 6 months and 6 years be given the three doses of toxin-antitoxin and that older children be given the Schick test to determine whether or not they are immune to this grim enemy.

So far the majority of us are agreed, but the average physician in general practice hesitates to urge his people to use a preventive measure with which he is somewhat unfamiliar or which to his mind has not proved its value sufficiently to warrant its general application: or again the reputable physician refuses to do that which savors of advertising. As progressive doctors of medicine are we satisfied to sit back and wait for the precious few parents who have a vision to apply their knowledge in a practical manner and ask that their children be given the means to protect them from disease, or rather, do we not desire to see every child protected?

How may we save thousands of little children from enduring the painful mental and physical sufferings entailed by an attack of diphtheria? How may we prevent the chronic discharging ears, the chronic heart and kidney lesions and the other pathological conditions which follow in the wake of an attack of diphtheria and frequently persist as long as the unfortunate victim lives.

These questions have been satisfactorily answered by medical men all over the world, by the work of Dr. William H. Park of New York, and the late Dr. Abraham Zingher also of New York State where over 400,000 children have received toxin-antitoxin. We quote the following statement made by Dr. Zingher in a discussion

of a paper on diphtheria and published in the American Medical Journal, issue of November 4, 1922:

New York. Dr. Zingher said in part:

I should like to mention one or two points in connection with the work that we are planning for this summer among children of preschool age. We have practically finished all the public schools in New York City. A great educational campaign has been conducted through these schools in teaching the people the great value of these newer preventive measures against diphtheria. More than 800,000 homes have been reached. We intend to utilize this valuable propaganda. We shall offer the people the opportunity of having their children who are from 6 months to 6 years of age protected against diphtheria. We are emphasizing the fact that every child in this age group should be inoculated against diphtheria just as it is vaccinated against smallpox. We shall give these young children the three injections of toxin-antitoxin without a preliminary Schick test; reserving, however, the issuing of a diphtheria protection certificate for the time when the children show a negative Schick reaction. These Schick tests will be made when the children are admitted to school. We feel quite strongly that no child should be pronounced immune to diphtheria until it shows a negative Schick reaction. We noticed no symptoms of anaphylactic shock in giving more than 100,000 injections of toxin-antitoxin. This was also true when repeated series of injections of toxin-antitoxin were given.

Kansas. In October, 1925, Dr. John L. Lavan, Commissioner of Child Hygiene and Communicable diseases and Dr. E. C. Black, physician to public schools, Kansas City, in conjunction and cooperation with the school board undertook to inaugurate a campaign for the prevention of diphtheria. Having a good understanding of conditions in the past, particularly with respect to contagious diseases, they estimated that if they could reach 20 per cent. of the total enrollment, they would have accomplished much. However, after checking tabulations, they found that they had nearly doubled this estimate. They encountered an immediate response from the people that was very gratifying and one which kept them very much occupied during the whole school year, especially as they were handicapped by lack of personnel and lack of funds.

Illinois. We might continue to give examples of this sort, but let us talk in terms of Illinois, for after all, we are primarily interested in the people of our own State. Possibly some of you will be surprised to hear what has been accomplished, through the cooperation of local physi-

cians with Boards of Health, Parent-Teacher Associations, Women's Clubs, Boards of Education; through publicity (articles published in local papers, etc.); through the work of the public health nurses; by public talks (speakers sent out by the Educational Committee of our State Medical Society, by the State Department of Public Health, and by our County Medical Societies); by examination of the preschool child; by medical inspection of school children, and by films, posters, etc.

Diphtheria Drops Down-State—Up in Cook County. A statistical study made by the Department of Public Health shows that "Leaving Cook County out of consideration Illinois experienced its lowest loss from diphtheria last year. Forty-four counties escaped without a single death from that cause and the loss suffered by the others amounted to 150 fatalities compared with 160 in 1926. This amounted to a six per cent. decline in the number of deaths and gave a rate of 3.9 per 100,000 population. In 1926 the rate was 4.3 for the State outside of Cook.

Including Cook County the State suffered an increase of 57 per cent. in mortality from diphtheria during 1927. There were thirty counties in which increases were observed but the rise of 98 per cent. in Cook County was by far the most important factor in making the State average greater. This, of course, is due to the density of population in Cook County. In a number of other counties the percentage of increase was much greater than in Cook but the relatively small number of people concerned made the difference insignificant so far as the State rate is concerned.

In thirty counties the number of deaths increased and in thirty they decreased. No variation took place in 42 counties. Of these 26 were among the 44 which experienced no loss of life to diphtheria.

The most favorable conditions prevailed in the 33 northern counties with the exception of Cook. In that area, where the estimated population is 1,424,302 the number of deaths was 46 and the rate 3.2 per 100,000. The number of deaths in those counties in 1926 was 55.

The largest reduction took place in the 34 counties south of Montgomery. In that area the

number of deaths dropped from 65 to 51 and gave that group of counties a rate of 4.9 for 1927.

Menard and Stark counties each completed with 1927 a five year period without the loss of a single citizen to diphtheria. Six counties, Brown, Hardin, Johnson, Moultrie, Putnam and Wabash, have been free for four years. Bureau, Cumberland, Effingham, DeWitt, Greene, Lee, McHenry, Monroe, Ogle, Schuyler and Warren make up a group of eleven counties that have not suffered a death from diphtheria for three years. The two year group includes Carroll, Henderson, Iroquois, Ford, Gallatin and Jackson. All of these counties have an advantage in the fight against diphtheria because foci of outbreaks have been pretty well dried up.

In the 35 central counties the mortality from diphtheria went up from 40 to 53, yielding a rate of 4.4 for the section. The increase was confined almost entirely to Macon, Sangamon and Vermilion Counties where 18 more deaths from diphtheria were recorded than in 1926.

While no very accurate analysis of the data has been made it appears certain that the use of toxin-antitoxin has been promoted on a much larger scale in the northern and southern counties than in the central section of the State. Work in the southern territory has been particularly noticeable and apparently it has appealed to the public there in a more practical way than elsewhere. In a number of communities toxin-antitoxin has been given to practically the whole susceptible population. This is true of White, Lawrence, Edwards, parts of Wabash, Johnson, Jackson, Fayette, Christian, Champaign, McHenry, Du Page, Mason, Wayne and Massac. Doubtless this has been an important factor in the favorable experience with diphtheria.

TABLE 1
DEATHS AND DEATH RATES FROM DIPHTHERIA IN ILLINOIS

Year	No. Deaths	Rate per 100,000 Population
1921	1,478	22.2
1922	1,181	17.4
1923	811	11.9
1924	480	6.8
1925	409	5.7
1926	411	5.7
1927	647	8.8

TABLE 2
MORTALITY FROM DIPHTHERIA BY SECTIONS

Counties	Deaths					Rate
	1927	1926	1925	1924	1923	
33 Northern	543	306	325	333	543	10.9
Except Cook	46	55	55	86	129	3.2
35 Central	53	40	40	58	117	4.4
34 Southern State...	51	65	38	79	140	4.9
	647	411	407	470	800	8.8

In 1926 there were 44 counties that escaped mortality from diphtheria entirely and in 1925 there were 42. The number to escape in 1924 was 31 and in 1923 it was only 12. Prior to 1923 very few counties in Illinois ever passed through a whole year without yielding some human life to diphtheria. Coincidentally, the use of toxin-antitoxin was practically insignificant prior to 1923.

Mooseheart, Illinois. For the following statistics we are indebted to Dr. John D. Nichols, Director of Health and Resident Physician at Mooseheart, Illinois.

Prior to 1919, Mooseheart was never free from some cases of diptheria, at times developing epidemic forms. During the spring of this year (1919), Dr. Winner of the State Department of Public Health gave the Schick test to the entire student body, consisting at that time of something over 500 children. There was a large percentage of positives. We then disregarded the Schick test and immunized every student with three weekly injections of 3 plus I. toxin-antitoxin, but did not Schick afterwards. We have been immunizing without Schicking every student immediately upon admission to Mooseheart as a part of their entrance examinations.

During 1920, we had two cases of diphtheria, one in a boy whom we had missed during immunization, and the other a boy who had very large tonsils and who had been immunized about one month previously. Since that time we had three employees who contracted diphtheria at different times and who were in direct contact with the children in their respective halls, but none of the children contracted the disease. Since 1920 we have had but one case of diphtheria among the children.

Soldiers' Orphans' Home, Normal, Illinois. From Dr. Ralph P. Peairs, physician for the Soldiers' Orphans' Home at Normal, Illinois, we quote the following:

In 1919 I decided to try out the Schick test, with the immunizing of susceptible children with toxin-antitoxin, in the Soldiers' Orphans' Home at Normal. Let us look at the condition of affairs as regards the prevalence of diphtheria in that institution during the time this work has been in progress. The disease appeared late in August, 1919, and for a period of five weeks there were fifteen cases. By culturing children and employees we found eight carriers during this time. Again in December, 1919, and for a period of six weeks there were twelve cases and one carrier. About this time the testing of the children by the Schick method was started and toxin-antitoxin given to all showing positive reactions. In July, 1920, it again appeared and during a period of four weeks there were ten admitted since the Schick tests had been done. All new children were tested at this time, and the positive cases immunized. In October, 1920, there were four cases during a period of two weeks. In December, 1920, two employees contracted the disease and four carriers were found. One of these was a child who had had the disease a year previous and the other three were employees. This makes a total of 45 cases and 13 carriers during a period of sixteen months. During 1921 we did not have a single case in the institution. All new children are tested and all positives are given three injections of toxin-antitoxin. We tested 600 children, of whom 266, or 44 per cent, were positive; 334, or 56 per cent, were negative:

TABLE 3—RESULTS OF TESTS

		Positive	Negative
Males	334	145	208
Females	246	120	126
	600	266	334

Perusal of the statistics has brought out some interesting facts and our results are in accord with other workers in this field. The youngest child tested was two months old and the reaction was negative. Children of from two to ten years showed the greatest susceptibility. Girls seem to be slightly less immune than boys. A few children who showed positive reactions were immunized and again tested several months later, and showed negative reactions. We have had one case of a girl of thirteen years who developed the disease a few days after the injection of toxin-antitoxin. This is in keeping with the theory that it requires two to three months after treatment before immunity is obtained. There was one case of a boy aged nine years who had three injections of the T. A. mixture in January, 1920, and who came down with a mild case of the disease in October, 1920. Attention has been called to the fact that in certain individuals three doses of T. A. mixture are not sufficient to confer immunity and additional doses are recommended in such cases. The fact that only one such case has developed among 246 children who have received three injections of T. A. shows that the method is of decided value.

For several years I have done no Schick testing but immunize all children. It was my plan to await until about 50 new children were admitted before immunizing them, as it saves some time. However, I found that an occasional case would develop among these children who had not been immunized. I have for the past six months immunized all new children within a few days after their admission and I have had no trouble in this way.

This is in decided contrast to the condition prevailing ten years ago. Then we were accustomed to expect 25-40 cases during the year, and epidemics were of frequent occurrence. It was always a source of worry to us. At the present time diphtheria does not worry us and we know if a case should develop there is no fear of an epidemic. Nobody can better appreciate the value of diphtheria immunization than a physician who cares for the children of a large institution especially if this population is a transient one.

In immunizing those who have shown positive reactions, three injections of T-A have been given, one week intervening between the injections. We have now given about 800 of these injections and there have been no alarming symptoms as a result. All of these children have complained somewhat of soreness and there has been considerable induration about the site of the injection. A few have been put to bed for one or two days, but nothing serious has resulted in any case, so we feel certain that the procedure is safe. One thing that was noticeable was the fact that the younger children did not show as much disturbance from the injections as did the older ones and the few infants to whom it was given showed the least reaction.

Insurance Company. The Metropolitan Life Insurance Company with Dr. Louis I. Dublin as statistician, in the *Statistical Bulletin* of the Company, July, 1927, states that the diphtheria death rate among children insured in that Company declined from 23.8 per 100,000 in 1921 to 9.5 in 1926. This is a reduction of 60.1 per cent., and is coincident with the increasing use of toxin-antitoxin.

Anaphylactic Reaction After Toxin-Antitoxin. Under "Queries and Minor Notes" in the *Journal A. M. A.*, December 17, 1927, two questions concerning the possibility of anaphylactic reaction following the use of toxin-antitoxin are answered as follows: "Practical experience indicates that there is little, if any, serious danger from anaphylactic shock and asthma from giving antitoxic serum to children who have been immunized with toxin-antitoxin." To obviate this slight danger the Illinois Department of Public Health now distributes T. A. made of goat serum instead of horse serum.

TABLE 4

DISTRIBUTION OF TOXIN-ANTITOXIN IN ILLINOIS

		Style A	Style B	Style C	TOTAL
		single Tr.	three Tr.	ten Tr.	
July 1, 1922-June 30, 1923.....	4,106	....	2,433	6,539	
July 1, 1923-June 30, 1924.....	588	....	1,147	1,735	
July 1, 1924-June 30, 1925.....	793	....	2,513	3,306	
July 1, 1925-June 30, 1926.....	1,069	....	2,679	3,748	
July 1, 1926-June 30, 1927.....	436	8,209	5,674	14,319	
July 1, 1927-Dec. 31, 1927.....	279	2,864	5,269	8,412	

Total distribution: Style A, 7,271; Style B, 11,073; Style C, 19,715; Total, 38,059.

If our scientific facts and statistics as to the cause of diphtheria, its prevention by administration of toxin-antitoxin and use of Schick test to discover the susceptibles are correct—and they undoubtedly are—diphtheria is both a preventable and controllable disease. It should have a low mortality wherever competent physicians are available.

In order to accomplish this, the physician should begin to educate the parents almost as soon as the baby is born and to see that toxin-antitoxin is given during the first year of life, shortly after 6 months of age. To insist upon all preschool children being immunized against the disease. Above the age of 6 years the preliminary Schick test should be given whenever practicable.

All school children giving a positive Schick should be immunized with toxin-antitoxin. No child should be pronounced immune from diphtheria because of having received three immunizing injections of toxin-antitoxin. A subsequent negative Schick test is absolutely necessary before any one can properly make such a statement or issue a certificate to that effect.

Let us furnish a real public health service to our patients and their families and to our communities. We realize that the preschool child needs the protection conferred by immunization much more than the older child so let us cooperate with our local Parent-Teacher Associations and the Woman's Club at least in the program for the preschool child, which Dr. John M. Dodson of Rush Medical College, has said is one of the best and most far-reaching childhealth programs that has ever been proposed.

Let us keep in mind that a toxin-antitoxin campaign has for its ultimate purpose the making of immunity to diphtheria a private responsibility. We are endeavoring to acquaint the public with the fact that such immunity is

obtainable, to offer convincing evidence of the efficacy and to provide a stimulus that will lead parents individually to have their children protected.

SUGGESTED OUTLINE FOR TALKS ON DIPHTHERIA IMMUNIZATION

In one county in the State where we were assisting the County Medical Society in launching a diphtheria immunization campaign we were asked to write an outline to be used by physicians when addressing a lay audience. This request was made in order that uniform statistics might be had.

1. What is diphtheria?
Season of greatest prevalence, etc.
2. Is diphtheria curable?
3. What is antitoxin?
When given?
Will antitoxin prevent as well as cure diphtheria?
Under what conditions should antitoxin be used as a preventive?
4. Is diphtheria preventable?
5. If so, why should it be prevented?
One reason: Diphtheria continues to cause one-third of deaths in United States for children under 6 years of age and mortality in recognized cases is still 10 per cent.
6. Toxin-antitoxin.
What is it?
Ages to be given: (6 months to 6 years and at any age when Schick Test is positive.)
Number of injections.
Difference between toxin-antitoxin and antitoxin.
Time necessary for T-A to become effective.
How long does immunity last.
Proof that T-A creates a relative permanent immunity. (Schick and Re-Schick.)
7. Schick Test.
8. Statistics on T-A and Schick.

New York: Over 500,000 have been immunized, which means that substantially more than one million injections of toxin-antitoxin have been given. There have been no serious reactions.
New Haven, Connecticut. Population, 175,000.
80 per cent of children immunized.

1926—1 death.

1927—2 deaths.

Auburn, New York. Population, 37,000. 85 per cent of school children and many younger ones immunized.

No deaths from diphtheria in 4 years.

California:

6,000 Schick Tests given to children in three counties, to inmates of four institutions and two groups of college students.

Results: First work done February, 1922, in town of 1,340 population. In 13 months preceding there had been reported 44 cases of diphtheria and five deaths.

As a result of vigorous campaigns 90 per cent of population under 18 years given Schick Test and T-A.

Since this general immunization 1 case of diphtheria in Schick positive child whose parents refused T-A.

California School for Deaf and Blind:

No cases since 1922.

University of California:

Susceptibles—69.7.

San Jose Teachers College Training School:

Susceptible—81.4.

University of Minnesota:

During last 3 years 8,069 Schick Tests. 52 per cent reaction positive. Percentage higher among boys. Slightly greater amount of susceptibility among students from smaller communities than from the larger.

Detroit:

In few years of concerted effort reduced diphtheria deaths from rate of 35.6 per 100,000 population in 1921 to 9.5 in 1925.

Mooseheart, Illinois:

Enrollment about 1,500.

Medical director began T-A in 1920. One case of diphtheria since that time.

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DISCUSSION

Dr. A. L. Hoyne, Chicago: Mr. Chairman, after listening to the splendid paper of Dr. Ball, I wonder if any one could fail to be convinced that toxin-antitoxin absolutely prevents diphtheria. Diphtheria occupies a very peculiar position in regard to public health situations. It is peculiar perhaps from almost any other disease we have to deal with. There is probably no disease in regard to which our knowledge has been more complete than that in regard to diphtheria and yet year after year, as Dr. Ball has pointed out and as these charts show and as we all know, the death rate runs on very much the same. We get a dip for a few years, a decline in mortality, and then again we find that mortality is up. There ought to be some definite reason for that; there surely is a reason.

Perhaps the thing at the basis of all our trouble in this connection is, as some of us suspect anyway, the fault of the doctors themselves in not advising people, advising the families, to have their children given toxin-antitoxin.

Several years ago when Dr. Robertson was Health Commissioner, he was very much interested in this problem and along in 1917 he decided to attack it from an angle somewhat different than might ordi-

narily be taken. He thought if he sent out a great deal of literature to the doctors, perhaps it might be placed on their desks and eventually find its way into the scrap basket because the men were very busy and they might not have time to read it.

So instead of going at the problem in that way, he thought he would try to arouse interest in people who were not doctors in order that they might inquire of doctors something in regard to toxin-antitoxin. One thing that he did was to place an easel in the City Hall with two large letters on it. The letters were simply T-A.

Naturally people came along, thousands of people passing back and forth, and they glanced at these letters and wondered what they meant. Nobody seemed to know. Finally one day a reporter stood and listened to the comments and he heard someone say that the Health Commissioner knew something about it, so the reporter went to the Health Commissioner to inquire if he did know anything about it. He said he had been standing in the hall listening to the comments of the people and that the majority of them had agreed that these two letters, T. A., stood for Thompson Administration.

About that same time, in 1917, we thought it would be a good plan at the Municipal Contagious Disease Hospital to try to immunize all the nurses who had positive Schick tests. After attempting to do this with a few, we stopped because we found that in the adults the reaction was often very severe—that is, the local reaction especially.

Besides that, the preparation that was put out at that time was probably not as carefully prepared as it is in the present day. At any rate, as Dr. Ball pointed out, the younger the individual is who receives the toxin-antitoxin, the less likelihood there is to be any severe reaction. Certainly a child a year of age given three doses of toxin-antitoxin will very seldom suffer any ill consequences as a result.

When you go into some institution and attempt to Schick individuals as they do in some of the hospitals in regard to nurses, I think it depends a lot on who does the Schicking and it also depends a great deal on who reads the interpretations. It depends somewhat, too, on the material that is used.

Dr. C. Martin Wood (Decatur): One thing that should be emphasized is that no one agency is going to put this campaign over. We have had some experience with this down in Macon County and we find that you can't do it all through the school, you can't do it all through the doctors; that you have to have a combination of a good many different agencies to put this over.

The doctors can get their own patients and that still leaves some open. The school can get the children of six years old and over—a very important group of children of pre-school age is left, and that is really where the toxin-antitoxin is most needed.

We have tried offering free antitoxin treatments to all those who weren't able to pay for it; told them to come to the hospital a certain day, and out of a

population of sixty thousand people only fifteen children presented themselves the first day for the toxin-antitoxin. So I think it will have to be through a thorough organization and publicity more than anything else.

Our County nurse now has several dozen schools in the county that are a hundred per cent protected just through her own initiative. She started and got the children in the country schools to take it up and she has several schools where all the children have had the toxin-antitoxin. It certainly is something that should be pushed by every doctor and all public health agencies.

Dr. Ball: I am very glad that Dr. Wood brought up the matter of general cooperation of everybody in the community. That is true. There isn't any one individual agency that can put this over; it does take general cooperation.

I also want to call your attention to the importance of the pre-school child program as emphasized by Dr. John A. Dodson of Rush Medical College. He feels it is one of the most important health activities that has come up in recent years.

ALBUMINURIA IN CHILDREN*

JOSEPH K. CALVIN, M.D.,

CHICAGO

The significance of albumin in the urine of apparently healthy children is still the subject of much discussion. Most of these cases are accidentally discovered in the routine examination of urine in schools, orphan asylums and dispensaries.

It is not our purpose in this paper to repeat the study of large groups of children to determine the incidence of albuminuria, but intensively to study small groups with the objective of throwing some light on the cause, or causes, and significance of the condition.

However, the incidence of albuminuria in 5,000 school children has been so thoroughly investigated by Lauener that we feel justified in summarizing parts of his work in table 1.

Table 1.—Summary of Lauener's Cases of Albuminuria in Five Thousand School Children

Age	Number of Children	Percentage Showing Albuminuria	Percentage of Boys with Albuminuria	Percentage of Girls	Percentage Showing Trace of Albumin	Percentage Showing ++ or More
6-7	1,246	6.7	5	8.5	5.6	0.2
10-11	1,350	27	18.6	35.5	15.6	5.7
15-16	2,481	38	29.5	46	25.5	3.2

Because of the confusion in the literature re-

*Read before the Clinical Section of the Illinois State Medical Society at the Cook County Hospital, May 10, 1928.

garding the etiology of the so-called benign albuminurias, we have attempted to determine the causes by analyzing two groups of children of very different environmental and physical conditions. Dr. Jacob Meyer and Miss Bertha Isaacs were co-authors in this work.

One of the groups studied was composed of children having no special complaints or illnesses. They were recruited from the homes of the very poor in which hygienic conditions were at their worst, diets were improperly balanced and teeth, tonsils and other potential foci of infection neglected. Consequently, undernourishment and anemia were common. This group will hereafter be designated as group 1.

The second group studied consisted of children living in a well regulated orphans' home under the supervision of a watchful physician. Their hygienic surroundings were very good. They lived a well regulated life with the proper balance between school work, play, recreation and rest. The meals were properly balanced. Foci of infection were eliminated as soon as discovered. Periodic physical examinations were made. This group will hereafter be known as group 2.

The results of the urine examinations are shown in tables 2 and 3.

Table 2.—Data in Cases Presenting Aluminuria in Five Hundred and Twenty Children Examined (Morning Specimens Used)*

Group	Number of Children Examined	Boys	Girls	Age Range	Average Age	Percentage of Total Showing Foci of Infection	Total Percentage of Albuminuria	Percentage Boys	Percentage Girls
1	189	103	86	2-16	8	63	60†	45	70
2	331	181	150	6-16	11	0	15	10	20

*The microscopic findings were abnormal in less than 1 per cent of the cases.

†Eighty per cent of the total albuminurias (60 per cent) showed evidence of malnutrition and foci of infection.

Table 3.—Results of Reexamination of Same Cases Over a Period of One Year

Group	Number of Children Examined	Boys	Girls	Time	Total Percentage of Albuminurias	Percentage Boys	Percentage Girls
2	331	181	150	6 months later	15	9	22
2	331	181	150	1 year later	15	9	22

From these observations we conclude that the incidence of albuminuria is much higher in children living under poor hygienic surroundings, having many foci of infection (untreated) and for the most part being anemic and undernour-

ished. That these factors do play a prominent role in the causation of so-called benign albuminurias in children is evidenced by the fact that many respond to the treatment of these etiologic factors, as will be described later.

The orphanage children (group 2) have a minimum of these factors present. Lest our conclusions be misinterpreted, we wish to repeat that the findings of carious teeth, enlarged and infected tonsils and adenoids, or infected nasal sinuses merely add to the picture of a child below par physically and are not, so far as we can determine, the specific causes of the albuminuria. We feel that the correction of such defects results in an improvement of the albuminuria, mainly so far as it helps to produce a general improvement in the condition of the child.

Idiopathic or "Growth" Albuminuria. Albumin may appear a considerable time before puberty, but it reaches its greatest incidence during adolescence, the period of greatest growth. Lauener has used the term "growth" albuminuria. He is of the opinion that growth, with its attendant phenomena, is a factor in the albuminuria of juveniles. As it is more frequent in girls than in boys, this may be attributed to their more rapid and intensive growth. We wish to direct attention to this and to point to our experiences with the orphanage children. Here are children in whom all foci of infection have been removed, who to all appearances are normal and well nourished, and whose weight curves show a definite increase, and yet, a small but fairly constant percentage manifest benign albuminuria. It would seem that 78 per cent. of the albuminurias in the orphanage children would fit into the group classified as "growth" albuminurias. The remaining 22 per cent. were of the orthostatic type (table 4).

The albuminuria in many of the cases studied was transitory in character, as revealed by repeated urine examinations. In group 1, on sixty-five of the 189 children studied, from two to six urinalyses were made over a period of one year. Forty of the sixty-five varied from positive to negative and back to positive or negative again. In group 2, fifty of the 331 urines examined were positive on the first examination. One week later, of the same fifty, only forty-three were positive for albumin, and six months later, only twenty-one of the original fifty albumi-

nurias were still positive. Also sixty-two cases in which the first examination was negative showed a positive urine six months later.

Orthostatic Albuminuria. Many observers have maintained or implied in their writings that the non-nephritic or benign albuminurias found in urines on routine examinations are based on an orthostatic or postural albuminuria.

From our studies we believe that most of the so-called benign albuminurias in children are not of the orthostatic type. By orthostatic albuminuria we understand a condition in which the urine excreted while the patient is lying down is albumin free, with the subsequent appearance of it after he rises. In short, if the first specimen passed in the morning, when compared with a specimen obtained later in the day, after normal activities, contains as much albumin or more, then the condition does not belong in the category of the orthostatic albuminuria.

We examined the afternoon urine specimens in group 2. In those found positive, the first specimen passed in the morning (night urine) and an afternoon specimen were reexamined. The results are summarized in tables 4 and 5.

Table 4.—Comparison of Morning and Afternoon Urine in Cases in Which the Afternoon Specimen Had Been Found Positive

Total Number of Cases in Which Afternoon Specimen Had Been Found Positive		Total Percentage of Orthostatic Patients Among the 32 Albuminurias (in the 249 Children)	Percentage of Orthostatic Patients Among the Total Number of Children (249) Examined	Percentage of the 12* Boys Negative in the Morning and ++ or More in Afternoon	Percentage of the Total Boys (138) Examined Negative in the Morning and ++ or More in the Afternoon	Percentage of the 20* Girls Negative in the Morning and ++ or More in the Afternoon	Percentage of the Total Girls (111) Examined Negative in the Morning and ++ or More in the Afternoon	
Boys	Girls							
12*	20*	32	7, or 22%	7, or 2.8%	4, or 33%	4, or 29%	3, or 15%	3, or 2.7%

Table 5.—Data of Albuminuria in Afternoon (Late Afternoon Specimens)

Total Number of Cases		Percentage of Total Positive in Afternoon	Percentage of Total Boys (138) Positive in Afternoon	Percentage of Total Girls (111) Positive in Afternoon
Boys	Girls			
138	111	32, or 12.8%	12, or 8.2%	20, or 18.9%

We believe our results indicate that the greater percentage of albuminurias in children are not the postural or orthostatic type. We admit, however, that at times it is difficult to differentiate between a so-called growth albuminuria and an

orthostatic albuminuria, especially as one may merge into the other; but we feel that postural relationship is the most definite constant characteristic of the orthostatic albuminuria. Whereas some would assign a greater proportion of benign albuminurias to the orthostatic variety, we are more inclined to separate this group and to add that the greater proportion of benign albuminurias in children are due to the asthenia and anemia resulting from foci of infection and to growth disturbances.

Type of Protein. Until the recent work of Welker, it was generally agreed that the protein in the urine might be identified as either serum albumin or serum globulin, also referred to as euglobulin, or a combination of the two. Langstein and Wallis concluded that the protein precipitated by acetic acid added to cold urine was euglobulin, while Pollitzer believed that the precipitate was caused by a combination of serum albumin and chondroitin-sulphuric acid. The precipitate is often referred to as the acetic acid body. Welker's investigations disclose, however, that chemical tests for the identification of the types of protein in urine are difficult of application and interpretation, but that the precipitin test accurately identifies most of the proteins. By means of the precipitin test he found that the protein in urine may be identified as coagulable protein not precipitated in the cold by acetic acid (serum albumin, pseudoglobulin); or coagulable protein precipitated in the cold by acetic acid (mucin, nucleoprotein), and non-coagulable protein not precipitated by acetic acid at all (proteoses). There is no simple test for separating euglobulin, mucin and nucleoprotein available. All of these are precipitated in the cold by acetic acid.

The results of our investigations of the types of protein present as determined by the "cold" and "heat" acetic tests are given in table 6.

Table 6.—Results of Investigations of Types of Protein

Total number of urines analyzed.....	906
Total number giving a positive protein test on the addition of acetic acid to the cold urine.....	248, or 27.4%
Total number giving a positive protein test on the addition of acetic acid to the heated urine....	398, or 43.9%
Total number agreeing in both the cold and heated specimen (either positive or negative).....	646, or 71.3%
Total number more positive in the heated than in the cold	238, or 26.6%
Total number more positive in the cold than in the heated	20, or 2.2%
Total number positive in the cold only.....	18, or 1.99%
Total number positive in the hot only.....	163, or 18%

We concluded from these results that 26 per cent. of the urines examined and 58 per cent. of those showing a positive protein reaction contained either euglobulin, nucleo-albumin, mucin, or all of them, which precipitate out when acetic acid is added to the cold urine. As 26 per cent. of the total were more positive in the hot urine, it is reasonable to assume that, at least in this number, serum albumin or pseudoglobulin, or both were present, as this percentage reacted only in the heated urine. In two-thirds of the analyses, the heat and cold test agreed (either positive or negative). In this series, 46 per cent. of the total gave a positive protein reaction.

It appears from these results that either euglobulin, nucleo-albumin and mucin, or all, are prominent components of the protein in the urine in the benign albuminuria cases, but that serum albumin or pseudoglobulin may occur alone, even in benign albuminurias. Only by further investigations by means of the precipitin test can it be determined which one of the three proteins, euglobulin, nucleo-albumin or mucin, predominates in these benign albuminurias.

SUMMARY AND COMMENT

All previous investigators agree that albuminuria is a frequent occurrence in children, especially in those over 6 years of age, becoming more frequent toward puberty. Most agree that the incidence is higher in girls. Globulinuria is generally accepted as a type of proteinuria that predominates, or is a prominent feature in these cases. Some authors maintain that most of these juvenile forms of albuminuria are of the orthostatic or postural type. Others contend that the majority are not of this type but nevertheless are harmless and of not as much importance as is customarily attached to them. Many cases have been followed into adult life and have shown no higher incidence of nephritis. It is generally agreed that the growing kidney may physiologically secrete albumin in the urine, and consequently during the period of most rapid growth (puberty) the greatest incidence occurs.

As a result of our studies, we believe that some of these albuminurias may be considered physiologic or growth albuminurias, but that many other etiologic factors may be present, which, when removed, result in the permanent disappearance of the condition. One of us has

conducted an albuminuria clinic for several years for the purpose of finding the cause and eliminating it if possible in these cases. Foci of infection, especially chronically infected tonsils, adenoids, nasal sinusitis and abscessed teeth, are the chief offenders. Many cases of albuminuria have responded when treatment was directed toward these foci. Again, undernourishment and anemia often were associated with albuminuria, which responded to the overcoming of these factors. We reiterate that we do not believe that all of these factors (foci, etc.) have any direct specific effect on the kidney. They probably are a part of the picture associated with malnutrition or an under par condition with faulty blood volume and blood flow, resulting in hypofunction or impaired function of the body tissues. In short, the albuminuria is merely one symptom of a general systemic disturbance in these cases.

We wish to direct attention to the dangerous practice of stressing the term albuminuria too greatly to the parent or to the child. The harm done psychically may be worse than the condition physically. Albumin in the urine is a dreaded occurrence among the laity, and albuminuria neurotics can easily be created. The "disease" often occurs only in the physician's test tube and in the mind of the patient. However, these simple benign albuminurias must not be totally disregarded. A functional albuminuria should be regarded much as a functional heart murmur. Every case should be under the control or observation of the physician for a variable period, certainly during the period of adolescence, and for a short period following.

We offer the following classification for convenience, thus doing away with a host of misleading terms:

Benign Albuminuria:

(a) Malnutrition albuminuria, frequently associated with anemia, underweight and systolic basal murmur. Foci of infection, especially infected tonsils, adenoids, nasal sinuses and carious teeth, are common causes of this malnourished condition.

(b) Orthostatic albuminuria, associated with posture.

(c) Idiopathic or "growth" albuminuria, including the terms juvenile, puberty, cyclic, transitory and intermittent.

According to our experience, the simplest methods of treatment should be followed. We would recommend first an intelligent explanation of the nature of the findings to the parent, explaining the simplicity and benignancy, and that it does not comprise a sickness or disease. Those cases which demand correction and elimination of apparent foci of infection certainly should have these done. Nutrition should be improved and anemia overcome. But we do not advise any excessive rest cure or restricted low protein diet as a remedy. Such measures may actually result in harm to children who are physically under par. The child should be allowed to lead a normal life with only such restrictions as are necessary to overcome any malnutrition; otherwise, freedom in every regard has proved to be the best remedy. Especial emphasis should be laid on the physical development of the orthostatic group.

ESOPHAGEAL OBSTRUCTIONS CLINIC*

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We realize that diseases of the esophagus are relatively rare, but because the function of the esophagus is to carry food from the mouth to the stomach and keeping up nutrition by the entrance of food through other channels is unsatisfactory, we feel esophageal disease, though rare, is of considerable importance.

In considering diseases of the esophagus, one should keep in mind the anatomy, physiology and relation to surrounding organs. The gross anatomy is relatively simple, the esophagus being a relatively long and narrow tube beginning opposite the upper border of the cricoid cartilage about six inches from the incisor teeth. It is about sixteen inches in length in an adult, passes through the thorax and enters the stomach about one inch below the diaphragm. There are three points at which there is a relative narrowing of the lumen, the beginning of the esophagus where the left bronchus crosses, and where the esophagus penetrates the diaphragm. These points are the site of most usual pathology. The narrow lumen is easily closed so that practically

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all pathological conditions result in obstruction and the patient is unable to swallow food. The wall of the esophagus is made up of a mucous membrane lining filled with secreting glands and muscle coats of circular and longitudinal fibers.

The physiology is the act of swallowing and is accomplished by a progressive peristaltic action, the circular fibers at the lower end acting as a sphincter and causing a temporary delay of the food just before it enters the stomach. This is mentioned as it is possibly the cause of irritation which influences the development of malignancies at this point and when exaggerated gives the more marked spasm of cardiospasm.

The anatomical relationship of the esophagus to the trachea, lobes of thyroid, left bronchus, aorta, thoracic duct, etc., and to pathological conditions such as aneurysms, abscesses in throat and mediastinum, etc., make it necessary in one's examination and treatment to be absolutely sure that the patient is not to be injured more than benefited by our manipulations, so in using tubes, bougies, esophagoscope and even fluoroscope, great care is necessary as rupture of the esophagus with infection of the non-resistant mediastinum is practically always fatal. The lesions of the esophagus are of the usual classification—congenital and acquired.

Congenital Lesions. Congenital lesions vary from a narrowing of the lumen to complete obstruction with absence of lumen for a considerable distance.

Case 1. Our first case is that of a boy who came to us when three years of age, complaining of regurgitation of food which had been present since birth, coming on as soon as food was taken, worse with solids than liquids, though everything caused trouble. Careful diet as prescribed by pediatricians had failed to help. He was markedly emaciated; showed all symptoms that go with under nourishment. There was no history of swallowing foreign body or escharotics and symptoms began in first weeks of life. Wassermann was negative. Bougie and tube were obstructed at about level of bifurcation of trachea and barium was held at same level. This definitely is a congenital deformity which did not completely obstruct. The method of dilating used was that developed by Dr. Bertram W. Sippy. It consists of having the patient swallow a small silk thread which has been waxed to prevent untwisting and knotting. Usually it is necessary to have at least three yards swallowed so that the lower end is well down in the small intestine and consequently so fixed that it can not be pulled out. We have found by experience that this thin Corticelli silk thread will pass through any opening that will allow

water to trickle through so that even the patients with very tight obstructions are able to get it through if they persevere in the attempt. The string is used as a guide and along it the wire is inserted. The wire is of flexible steel with a small bulb screwed and soldered to the small caliber end. This bulb has an opening in its center through which the string is threaded. The dilating bulbs are arranged in sequence on the wire, a small one first, gradually increasing in size so that the center bulb does the dilating and a similar series turned in the opposite direction allows for a safe and harmless removal of the dilating outfit. The bulbs are then pressed along the wire through the obstruction by a



Fig. 1. Congenital Obstruction. Case T.

spiral. The safety of this method lies in the fact that the string has to follow the opening, the wire of necessity must follow the string through the opening and the dilating bulbs must follow the wire, thus assuring us against false passage and giving a maximum lateral dilation with a minimum danger of perforation. This boy has been dilated to date, has had a normal development and has very little difficulty in getting ordinary foods through. Plate I.

Acquired Lesions. Acquired lesions, if we make our list complete, should include:

1. Inflammations caused by chemical or mechanical agents plus infections with resulting reaction and scar tissue formation.

2. Some special inflammations as tuberculosis, typhoid, syphilis, thrush, etc., uremic ulcers, occasional peptic ulcers, etc.

Diverticula, divided into three types: 1. pres-

sure diverticula, 2. traction diverticula and 3. pressure-traction diverticula types. The first, pressure diverticula, occur high upon the posterior wall just below the junction of the pharynx and esophagus where the muscle coats do not completely surround the tube. They may be large enough to cause obstruction by pressure. The traction types are usually in lower portion of the esophagus and are result of contraction of inflammatory tissue, glands, etc., and usually are found during fluoroscopic examination and do not cause symptoms. Certain diverticula are a result of both factors and are logically called pressure-traction type.

Case 2. Our second case came to us with a history of difficulty in swallowing which had been present for a year, gradually getting worse, with milder symptoms for a long time which were so slight that they were not considered of any importance. He noted a sensation of food sticking high up in the esophagus, the sensation getting worse as he continued to eat until there would be a regurgitation of food with a peculiar crowing sound. He had brought up food in this way that had been eaten 24 hours before. Condition was made worse by excitement. He had lost 40 pounds in weight and was definitely weak. No tumor masses or glands noted in neck. Physical examination essentially negative except for difficulty in swallowing, a



Fig. 2. Diverticulum-Pressure Type. Before Operation.

definite fullness above left clavicle to left of midline on swallowing and a regurgitation of food quickly after its ingestion. Patient was x-rayed early in examination because the type of difficulty, the crowing sound on regurgitation, the pouching above clavicle and the retention of food spoke for a diverticulum. At fluoroscopic examination we found the large pouch as

seen in plate 2; under fluoroscope, stomach tube and bougies could be passed through the esophagus into the stomach. This was done under direct observation because if the opening into the pouch had been large enough to allow entrance of the tube, slight pressure might rupture sac and cause serious infection. Patient swallowed the silk thread, as described in first case.



Fig. 3. Same as Fig. 2. After Operation, showing still a small retention.

and large bulbs were passed, proving that the difficulty in swallowing was not due to anatomical narrowing of the lumen but to pressure obstruction by the filled pouch. Diverticulae of small size are usually causing so little trouble that operative procedure is not justified, but this man was having so much trouble that operation was advised.

There is always a tendency for the surgeon to feel that radical removal should be done because of the case with which the sac can be isolated and perhaps the anatomical comparison to an ordinary hernial sac, but experience has shown that removing a diverticulum will be followed fairly regularly by leakage, mediastinitis and death, so more conservative measures are advisable, such as two-step operations with the sac exposed till adhesions are formed and then removed, or the invagination operation as sponsored by Drs. Sippy and Bevan, care being taken to fix the invaginated mass so that it will not be forced into the esophagus and interfere with respiration or cause an obstruction during convalescence.

The invagination method was used in this case, Dr. Bevan doing the operation. Patient made an uneventful recovery and has had no difficulty in swallowing since. Plate 3 shows present condition of esophagus.

Case 3. Diverticulum high up in esophagus, small in size, causing only a regurgitation of food, but no pain, and not being enough inconvenience to justify operation with its attendant dangers. (Plate 4.)

Case 4. A traction diverticulum at the lower portion of esophagus, found in a patient who came to us with a duodenal ulcer. This diverticulum was not caus-

ing any symptoms and was found only in routine x-ray examination. This was probably a result of contraction of healing mediastinal glands which were attached to the esophagus wall. (Plate 5.)



Fig. 4. Small Diverticulum. Not enough symptoms to justify operation.

4. Cardiospasm—usually at the lower end of the esophagus, occasionally at beginning.

Case 5. Patient has had difficulty in swallowing for years; came on while eating; worse if excited; noted



Fig. 5. Traction Diverticulum, lower portion esophagus.

first as a feeling of pressure in the lower portion of esophagus. Regurgitated food showed no digestive change and did not taste sour or bitter. He had noted a 48-hour retention. Cold and liquid foods caused more trouble than warm and solid foods. Condition was intermittent in type, at times being absent for sev-

eral days, but of late months giving practically constant difficulty. The treatment here varied only in the dilating apparatus. The string was swallowed in the usual way, the wire passed along it and a bag approximately 6 inches in length connected by tube with a pressure bulb and mercury monometer passed along the wire until it was located so that middle of the bag occupied the cardiospasm, as seen by fluoroscopic examination. With the bag in place, a measured amount of pressure can be used in dilating and the bag can be made to vary in diameter if the first and smaller stretching are not sufficient to give results. (Plate 6.)

5. Obstructions, scar tissue from a variety of escharotics, chemical, mechanical and thermal.

Case 6. A history of swallowing lye when a child. Severe acute pain, spasm at once and inability to take food. Gastostomy was done almost immediately and no dilatation attempted for 4 or 5 years. The obstruction was complete enough so that at no time could any



Fig. 6. Large dilatation from cardio spasm.

barium be seen to trickle through the esophagus. A string could not be swallowed. Esophagoscopy examination could not locate the opening so dilatation was not attempted. (Plate 7.)

6. Tumors—usually carcinoma, occasionally sarcoma.

Case 7. A man, 56 years old, came to us with a history of difficulty in swallowing, present for four months, first noted with solid foods but gradually getting worse so that at a time of first examination he could get only small amounts of water through. He was emaciated, showed occult blood in every bowel movement, had a secondary type of anemia and negative Wassermann. Bougie met with obstruction 14 inches from incisor teeth and x-ray showed barium retention with the lower edge of barium shadow being markedly irregular as seen in Plate 8. This is the location of about 50 per cent. of esophageal cancer.

Case 8. A man of 50, who had difficulty in swallowing for three months beginning with choking on a piece of meat, but at the time of first examination

was able to get only small amounts of water through. He had lost weight and strength rapidly; was very much dehydrated; Wassermann negative; blood pres-

ture of the stomach involving the esophagus and causing the obstruction.

The malignancy cases are dilated as described in the first case, care being particularly necessary not to attempt too rapid dilatation, as friable cancerous tissue is easily torn and rupture of the esophagus in such cases is always serious. We are usually able to get a large enough opening so that starvation or dehydration is prevented.

The three cases were treated by the method described for the congenital obstruction. In each of the cases the string was swallowed with some



Fig. 7. Dilated esophagus above. Lye stricture.

ent in bowel movement. X-ray examination showed obstruction (Plates 9, 10) located at about the bifurcation of the trachea, the next common location for esophageal cancer (40 per cent.).

Case 9. A woman, 48 years old, who had been having difficulty in swallowing for two months, so severe



Fig. 8. Esophageal Carcinoma.

that she felt she was starving to death. Bougie met with obstruction 15 inches from incisor teeth, which we felt should be at lower end of the esophagus. She had negative Wassermann, positive blood in bowel movements, and had lost rapidly in weight and strength. She had a definite epigastric tenderness and rigidity. Though a mass could not be palpated, x-ray revealed an infiltrating mass along the lesser curva-



Fig. 9. Esophageal Carcinoma.

difficulty, but after it was done, dilatation was accomplished and large enough opening made so that liquids could be swallowed readily, semi-solid foods easily and some solid foods without great difficulty.

Surgery of the esophagus is very difficult and unsatisfactory. Radium in malignancy is of questionable value; deep therapy in scar tissue and in our congenital obstructions of no value. Since the function of the esophagus is to allow the passage of food and water, we have felt that the wire and dilating outfit designed by Dr. Sippy furnishes the best method of treating these cases. To recapitulate, briefly the method requires the patient to swallow a silk thread, waxed to prevent kinks and knots, until it becomes fixed in the intestine. This is used as a

guide for the wire and insures us against false passage as no other method does. A gradual wedge of bulbs is then placed on the wire, both for dilatation as the wedge enters and for safety as it is withdrawn. This wires makes the use of a considerable pressure possible. The grad-



Fig. 10. Esophageal Carcinoma.

uated bulbs make a lateral dilatation without tearing. The flexibility of the outfit makes it possible to follow a torturous path safely and withal gives us the maximum amount of dilatation with a minimum amount of danger, and

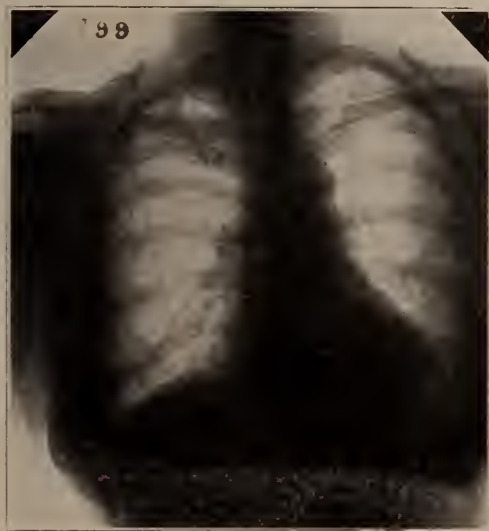


Fig. 11. Induration of lesser curvature of the stomach causing esophageal obstruction.

makes it possible in our first case to keep him living a normal life. The same in scar tissue

cases and in neoplasms to keep them happy, fairly comfortable and able to swallow food and fluid until metastases have caused constitutional symptoms.

RECTAL DRAINAGE OF PELVIC ABSCESES OF APPENDICEAL ORIGIN, WITH REPORT OF A CASE

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In both sexes and at all periods of life, the appendix vermiformis, irrespective of its size or of its location, abdominal, pelvic or extraabdominal can be, and frequently is, the seat of an inflammation, evolving to the stage of suppuration. Abscesses varying in size, number and location can result from suppurative or perforative appendicitis. In the cases in which the pus has accumulated in the cavity of the appendix, operation reveals the presence of an empyema of the appendix. In other cases the pus forms one or more small abscesses in the appendiceal wall or may infiltrate the entire thickness of the latter (phlegmonous appendicitis). An acutely inflamed appendix, gangrenous, perforated or nonperforated, can lead to a suppurative peritonitis, localized or diffuse. Should the purulent exudate be non-encapsulated, diffuse peritonitis is the resultant. If the pus be walled off by the abdominal wall loops of gut or other viscera a peri- or para-peritoneal abscess is the resultant.

The appendix has been found in all parts of the abdominal and pelvic cavities; it may be intra-peritoneal, extra-peritoneal or partly intra- and partly extra-peritoneal in location. The direction of the appendix with reference to the cecum is variable, its terminal end may point upward, downward, inward or outward; it may descend into the true pelvis. These anatomical considerations enable us to understand why non-embolic abscesses secondary to appendicitis have been found in so many various parts of the abdomen. The appendix may be merely contiguous to an abscess of appendiceal origin or it may, as it were, bathe in it.

Usually appendiceal abscesses are confined to the immediate vicinity of the appendix; in numerous cases, however, the pus, guided by agglutinated loops of gut and protective omental

adhesions, gravitates to distant regions in the lower abdomen and true pelvis and there sets up one or more walled-off abscesses. Abscesses of appendiceal origin are usually intra-peritoneal, may be sub-peritoneal. When located in the cul-de-sac of Douglas, the pus collection pushes back the anterior rectal wall and corresponds anteriorly, in men, to the urinary bladder; in women, to the uterus and the vagina. Loops of gut, matted together, with or without omental adhesions, form the dome or roof of the abscess and prevent the escape of the pus into the free peritoneal cavity.

Schrager, in reviewing this subject in 1916, said that suppurative appendiceal processes may spread backward and upward (the lumbar or post-parietal type of abscess) or upward and forward (the antero-parietal type), or downward (the rectal or pelvic type). It is with this latter recto-pelvic type of appendiceal abscess, rarely discernible by abdominal palpation, but always detectable by rectal examination, located wholly or in part in the lesser or true pelvis, that I especially wish to deal in this paper, in connection with a personal case which I will presently describe.

Though it is an established fact that a large proportion of appendiceal abscesses are pelvic in location, text-books rather ignore pelvic abscesses of appendiceal origin. Royster² in his book on appendicitis merely observes that the typical pelvic abscess may result from the localization of a diffuse peritoneal infection, may follow extension from the right iliac fossa of an abscess connected with the appendix, or may be due to a leaking pelvic appendix.

Etiology of Appendicular Pelvic Abscess. Although pelvic appendiceal abscess is usually referred to as originating from an acute appendicitis and soon after the latter's onset, there is apparently no reason why it should not also follow a sub-acute or chronic process; it may occur previous to or soon after an operation for appendicitis. (15th post-operative day in Patel's Case.²⁴) The appendix proper may have been dealt with by operation in the usual classical way, but the exploration may have been too limited and the extension of the inflammatory process to the pelvis may have been overlooked, or else in the case of an inferior pelvic collection of pus the classical abdominal drainage of pus has proven inadequate. Symptoms of a pelvic

abscess may, therefore, appear in the days or weeks following an appendectomy. In four cases following appendectomy, reported by Schrager, the symptoms of pelvic abscess first appeared in from 10 to 21 days following operation. I have recently had a very similar personal experience; and, as cases of appendiceal pelvic abscess drained through the rectum are infrequently met with in the literature, I think it worth while to report the clinical experience. My case is as follows:

On December 5, 1927, Otto Zezl, white, aged 27 years, was admitted to the West Side Hospital. He presented all the symptoms and signs of acute appendicitis and was subjected immediately to operation. The appendix, acutely inflamed and gangrenous (for about an inch at its distal end), was removed easily and rapidly by Dr. T. J. Echerer and myself. The scant peritoneal exudate present was mopped and the wound closed.

The first five post-operative days were uneventful. On the morning of December 10 the patient refused his breakfast and for the first time complained of pain in the abdomino-pelvic region; tympanites was present but careful and gentle palpation of the abdomen failed to detect any localized mass. On the 11th the abdomino-pelvic pain had increased, the mouth temperature was 102°F. On the 12th, the patient was very sick and the temperature was 102°F. Diarrhea now set in; the usual anti-diarrheic measures failed to check it. On the successive days the pain, tympanites and diarrhea increased (12 liquid stools on the 16th). Rectally the examining finger could easily detect a soft, fluctuating, extremely tender mass bulging into the lumen of the gut. General abdominal distension was present.

On the morning of the 17th, the patient was taken to the operating room. Under nitrous-oxide anesthesia the anus was dilated and the rectum copiously irrigated. After the bulging pus collection had been definitely located by inspection and by palpation it was punctured with the pointed end of the scalpel. An 8-inch forceps with its blades closed was introduced into this puncture opening; the blades were then opened and kept open as the forceps was withdrawn. Over one quart of foul smelling, thick pus escaped through the opening thus made. A gauze drain was inserted in the abscess cavity. The patient was then taken back to bed. On the following day the temperature was normal and the gauze was removed. Five days later, the symptoms having completely disappeared, the patient was discharged from the hospital and went home. Recovery was permanent.

Frequency of Appendiceal Pelvic Abscess. Though these abscesses are frequently overlooked, misdiagnosed and mistreated, there is no dearth of literature on the subject of pelvic abscess of appendiceal origin. Bérard and

Patel,³ Rotter⁴ and others have treated this entity fully in their classic articles with special reference to appendiceal abscesses which point toward the rectum.

Archibald, in 22 cases of appendiceal abscess, found that 7 were in the pelvis. Rotter collected 132 cases of appendiceal abscesses from the literature and found that 40 were pelvic abscesses. Of these, 7 were in the lesser or true pelvis and could not be palpated through the anterior abdominal wall. Sprengel¹³ found 7 pelvic among 127 cases of appendiceal abscesses. Bérard and Patel³ collected 44 cases of appendiceal pelvic abscesses, including 24 personal cases, all of which had been drained through the rectum. L. E. Schmidt⁷ reported 6 cases of pelvic pus-collections, which he considered consecutive to appendicitis. All of Schmidt's patients were males.

Condamin⁸ believes that the direct or indirect propagation of appendiceal inflammation to the pelvis and the formation of Douglas or para-Douglas sac abscesses are much more frequent than is believed, especially in women, but that such inflammatory collections are not recognized as being of appendiceal origin. Santy⁶ comments on the frequency with which spontaneous rupture of these abscesses in the rectum is followed by a rapid and permanent cure. He also reports a case of pelvic abscess in which rupture took place into the general peritoneal cavity.

Types of Appendiceal Pelvic Abscess. Bérard and Patel divide appendiceal pelvic abscesses into two types: (a) peri-appendiceal in which there is a direct connection with the abscess surrounding the appendix itself, and (b) the para-appendiceal in which the original abscess is above the pelvic brim, having no direct connection with the pelvic abscess beneath, which has formed by the gravitation of pus. There are intermediate types.

Appendiceal pelvic abscesses are classified by many clinicians into the two following types: the superior or iliac and the inferior or true pelvic. (Both types may coexist in the same patient.) The superior originates near the superior strait and, in its early stages, at least, is not recognized by either abdominal or rectal palpation. The inferior pelvic abscess is palpable through the rectum and usually bulges the rectal wall. There may be two or more appendiceal abscesses either distinctly separate or communi-

cating with one another. An iliac abscess may gravitate into the true pelvis and from there ascend to the opposite iliac fossa. For an iliac abscess, perform an iliac laparotomy; for a true pelvic abscess incise the overlying rectal wall.

Symptoms of Appendiceal Pelvic Abscess.

Although a pelvic abscess may be a direct consequence of a diseased or ruptured appendix and its main expression, yet the symptoms may not be those of a typical appendicitis. The clinician may be misled by the anomalous symptoms. The area of maximal pain is not situated at McBurney's point and the pain is diffused over the pubic region. Ballooning over the pelvic region, vesical pain and disturbances of urination are frequent. Royster says that the pelvic appendix (which type is most often associated with pelvic abscess) is characterized by absence of severe early pain, and that not until the appendix has perforated (generally at its distal end) are urgent symptoms noted. Royster explains the absence of pain by the fact that tension is not present because this type of appendix can empty itself and the first serious pain results from perforation. In the series of cases reported by Schmidt the symptoms suggested urinary tract involvement i. e., difficulty of urination, vesical tenesmus, and a rounded suprapubic mass which could easily be felt through the rectum and appeared to be connected with the bladder. These symptoms, of course, were due to pressure from the abscess mass.

Diagnosis. While neither abdominal nor rectal palpation will disclose the presence of a superior pelvic abscess, any doubtful acute process in the lower abdomen, especially in males, should arouse suspicion and calls for repeated careful rectal examinations. The diagnosis of a pelvic abscess which points toward the rectum can easily be made by rectal palpation; in fact, in these cases the rectum forms part of the appendiceal abscess wall. The examining finger feels in the anterior rectal wall, in the male immediately above the prostate, a soft, bulging, fluctuating mass.

In the male, an appendiceal abscess must be differentiated from a prostatic or periprostatic abscess, seminal vesiculitis, bladder diverticulum, etc. Abscesses arising from such causes may point toward and often rupture into the rectum. MacLaren,¹⁰ however, suggests that practically

all pelvic abscesses in males are of appendiceal origin.

In women a pelvic appendiceal abscess, occurring between the bladder and uterus or in the Douglas cul-de-sac, might easily be ascribed to some other condition and the appendiceal origin may be overlooked. A typical case of this kind is reported by Condamin.⁸ The patient, a young woman, had had her appendix removed. During the following five years she suffered from symptoms referable to an inflamed Douglas sac with a consequent uterine ante flexion, dysmenorrhea and general abdominal disturbance. The symptoms and disabilities disappeared on suppression of the douglasitis. Condamin says that apparently in this case at the appendectomy a certain amount of seropurulent discharge had penetrated to the Douglas cul-de-sac. Convalescence at the time of operation had been long and difficult. As Condamin justly observes, this case might have been erroneously diagnosed as a dysmenorrhea with an essential uterine ante flexion, congenital or acquired, but in reality all the symptoms were due to a douglassitis of appendiceal origin. In all cases of appendicitis, especially when the appendix hangs over the brim of the pelvis, rectal examination will prove serviceable. It will enable the clinician to detect pus-collections wholly pelvic and also those that are merely prolongations from the iliac abscesses not discoverable by abdominal palpation.

Insufficiency of the Ordinary Appendectomy in Cases with Pelvic Abscess. In operating upon a patient with an appendicitis having an anomalous course, surgical intervention need not necessarily be limited to the right iliac fossa, or to the parts adjacent or superior to the cecal region. The poor end-results obtained are often due to too limited an incision or to absence of adequate surgical drainage. The continuance of digestive disturbances, nausea, diminution of appetite, etc., calls for exclusion of an inflammatory process located in the true pelvis.

An acute pelvic abscess may follow immediately after an appendectomy as in my own and in Schrager's cases; it may be a late sequela to a ruptured appendiceal abscess, operated on or not, or it may occur with a so-called chronic appendicitis. The insidious symptoms arising from the abscess mask its appendiceal origin and a correct diagnosis is not likely to be made. Of course,

where, as in my own case, an abscess points in the rectum and there is a history of appendicitis, the exact nature of the condition is easily recognized. Cases of appendicitis convalescing badly occasionally do so because the abscess is not drained at its most dependent point.

Methods of Surgically Dealing with Appendiceal Pelvic Abscess. Appendiceal abscesses, abdominal, pelvic or abdomino-pelvic:

- a. May, if of small volume, undergo resorption.
- b. May not increase in size.
- c. May increase in size and invade adjacent areas, an empty hernial sac, space of Retzius, etc.
- d. May rupture spontaneously, into a hollow viscus, into a gut segment, into the vagina, into the free peritoneal cavity or externally through the abdominal walls. (Rupture into the vagina is rare; into the rectum, less infrequent). Not uncommonly, spontaneous rupture into the rectum has been followed by early and complete cure.

Various methods of treating pelvic abscesses (apart from the iliac drainage of high pelvic abscesses) have been proposed. Jaboulay¹¹ in 1896 drained a primary appendiceal pelvic abscess through the rectum. Mauclaire,¹² Schmidt⁷ and others prefer drainage through the perineal route. Besides Jaboulay, Ochsner,¹³ Rotter, Peterson¹⁶ and Chaput have used and praised rectal drainage of low pelvic appendiceal abscess. Delanglade¹⁷ employed a pre-rectal incision circumscribing the anterior outline of the anus at the distance of a finger-width. Sutton operated in a similar way in one case with success. It is admitted that the pre-rectal incision is of service in periprosthetic suppurations, but it is far inferior to the rectal route for evacuation of appendiceal pelvic abscess.

L. E. Schmidt, in discussing the perineal route and comparing two cases operated on this way with two other cases operated on from above in the usual way, remarks that the latter had a very long and stormy convalescence while the former ran a smooth course. Schmidt says that the perineal method was so superior that there is no comparison to be made. In cases where an appendectomy has not been already done, an abdominal operation may be performed at the same sitting.

In Peterson's case¹⁶ operated on by rectal drainage, a gallon of foul pus was drained and the patient walked home well on the sixth post-operative day. Rivière¹⁹ also reports a case of primary appendiceal pelvic abscess, operated on according to the Jaboulay technic, in which no subsequent drainage was employed following the original rectal incision and no doubt in some cases²³ this is sufficient.

Pauchet²⁰ and others use the abdomino-rectal method of draining low-situated pelvic abscesses, i. e., they supplement the abdominal incision for removal of the appendix by a rectal incision, performed at the same sitting for drainage of the pelvic abscess. Pauchet²⁰ believes that in purely pelvic abscesses the abdominal incision alone is insufficient for peritoneal drainage and that it exposes the patient to peritoneal infection; such a view seems fully warranted in the cases of low-lying abscesses. Pauchet successfully operated on 10 cases by this method and Bérard also reported a case successfully dealt with in this way.

In their review, Bérard and Patel³ say that the draining of pelvic abscesses of appendiceal origin is best effected by the rectal route. It is far preferable to the abdominal,¹⁵ perineal or parasacral routes. The parasacral method does not give an easy access to the pus-collection; it necessitates division of the fibres of the gluteus maximus and sacro-sciatic ligament. It may be attended with troublesome hemorrhage and leaves a wound difficult to keep aseptic (miction, defecation), and slow to heal.

The vaginal route is not a route of election. In female children, in young unmarried, and in nulliparous women, it should not be employed because the vagina does not admit of enough dilatation to permit a safe and adequate incision of the pus pocket. The prolonged contact of the cervix uteri with the infectious discharges escaping through the vaginal incision exposes the uterus and the adnexae to infection.

Objections to the Rectal Drainage of Pelvic Abscesses. Theoretically, the rectal routes is uninviting. Nevertheless, the objections that have been made to the rectal drainage of pelvic abscesses have been in the main theoretical. It has been said that it is a blind procedure, that it exposes to fistula formation and to contami-

nation of the abscess cavity. Deaver regards rectal drainage of appendiceal pelvic abscesses as opposed to the principles of sound surgery, and as more risky than operation through the abdominal wall. There is moreover the disadvantage that the appendix cannot be removed. Deaver treats cases of pelvic suppuration due to appendicitis by the abdominal route. L. E. Schmidt says: "It has been shown to be dangerous to permit spontaneous rupture of abscesses, even if imminent signs of their rupture into the rectum are present, and considered surgically, it is not exactly the procedure of choice to open abscesses through the rectum."

It has also been objected that the rectal route is a blind one which exposes to intestinal injury, to rectitis on account of pus, and to fistula.

Rectitis has never been observed in any of the reported cases and fistula is common to all other methods of drainage by the lower routes; the fear of fecal reflux to the abscess cavity is to a great extent imaginary.

The method should only be employed when there are very definite indications and the finger guiding the scissors in the section of the rectal tissues can easily prevent injury to a coil of intestine.

Bérard and Patel say that the objections which have been made to the rectal route are not based on any serious findings and the 44 cases which these authors collected in which rectal drainage was employed prove its incontestable superiority over other methods. The surgeons who have used this method when definitely indicated, as in my own case, have been enthusiastic and the patients have in almost all cases made rapid recoveries. It is another instance where clinical experience is opposed to theoretical considerations.

The comparative mortality of pelvic abscesses drained by the abdominal and lower routes as given by Rotter⁴ has already been cited and it is preponderatingly in favor of the latter. In the 44 cases of rectal drainage collected by Bérard and Patel, there was no mortality and there were no post-operative complications. Such results cannot easily be brushed aside.

In operating for an appendiceal abscess, the appendix should be removed if it can be found without prolonged searching, if it be easily accessible, and if its removal can be effected with-

out destroying protective adhesions and without inflicting serious trauma to surrounding loops of gut. In many cases, the operator, fearful of tearing fragile adhesions, or injuring inflamed intestines, limits his intervention to opening of the abscess. The only shortcoming of the rectal route is that it does not permit the removal of the appendix. This, however, can be done at a subsequent sitting through the aid of an appropriate incision. In a large number of cases, the spontaneous or operative, rectal or vaginal, drainage of a pelvic appendiceal abscess without simultaneous removal of the appendix had to be supplemented at a later day by an appendectomy, because the suppuration, though it had originated in the appendix, had not completely destroyed it. The rectal route for the opening of pelvic abscesses possesses the following incontestable merits:

1. Simplicity of technique.
2. Absolute safety. Negligible operative wound; hemorrhage, unimportant; mortality, nil. The hemorrhage, operative and post-operative attending it, is minimal as the incision only interests secondary branches of the inferior hemorrhoidal artery. It can always be controlled, either by light packing of the rectum or by seizing the lips of the rectal incision with forceps and ligating the bleeding points. The rectal route does not expose the general peritoneal cavity to additional contamination.
3. Absence of undesirable post-operative sequelae. It does not weaken the abdominal wall. There is no danger of fecal fistula, of incisional hernia. It does not, unlike the perineal and para-sacral routes, expose zones of loose cellular tissue to infection.

4. Rapidity of execution—short duration of required anesthesia.

5. It secures adequate dependent drainage and early recovery. Healing is favored by contractility of the rectal wall. In these low pelvic abscesses, amyloid liver and chronic sepsis often result if the dependent portions of the peritoneum are not drained.

6. It is efficient. The rectal route is adapted to the complete evacuation and thorough drainage of low pelvic abscesses. The orifice of exit which it creates is dependent, hence it secures thorough drainage. Invalidism and, at times, death result from inadequate drainage.

Technic of Rectal Drainage of Appendiceal Pelvic Abscess. The rectum having been irrigated, the patient is placed in the exaggerated lithotomy position; the buttocks are brought down over the edge of the table and elevated on a support. See that the urinary bladder is empty; if necessary, catheterize. The sphincter is dilated until it is completely paralyzed; two long-bladed flat retractors are introduced into the anal canal and the rectal wall is exposed. The fluctuating bulging-abscess mass soon appears covered with smooth, shining, rectal mucosa; a small incision is made in the anterior rectal wall and a closed sharp pointed forceps or a scissors is introduced into the abscess cavity. During withdrawal, the blades of the forceps or scissors are fully separated. A small rubber tube or gauze is introduced into the abscess cavity. I prefer gauze to rubber-tubing; it is non-traumatizing. These drainage agents are left in place for a day or two and are usually spontaneously expelled. Lavage of the abscess cavity is needless. It is of no value to constipate the patient.

Santy believes that the too rapid evacuation by the rectal route of a large pelvic abscess can, by the sudden collapse of the abscess wall, cause the tearing of protective adhesions and result in infection of the peritoneal cavity. We have been unable to find the report of an accident of this nature in the literature.

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VALUE OF WHITE AND DIFFERENTIAL
COUNT IN ABDOMINAL SURGERY*

A PLEA FOR ROUTINE USE OF DIFFERENTIAL
COUNTS

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The leucocyte count as a cardinal sign in acute surgical conditions has been a valuable aid in diagnosis and treatment for a matter of two decades. The early papers of men such as Wilson,¹ Sondern,² Gibson,³ focused attention at that time on this valuable adjunct. In recent years Meninger and Heim,⁴ using cases from the surgical service of Gibson, have confirmed and re-emphasized the earlier papers of Gibson. Neal and Robnett⁵ have still more recently (Sept., 1927) reported a large series of cases checked by pathological diagnosis re-stressing the whole work. Like all advances in medicine, attention is at first attracted, lack of proper perspective leads to overenthusiasm with false deductions, then swinging of the pendulum in the opposite direction. Such a valuable aid as the study of the white cells with their inter-relationships has been no exception. The total white count alone has fallen into considerable disrepute as a reliable aid. Also, the general impression prevails that the differential count is an elaboration of

the total leucocyte count, rather than as this paper will tend to show an entirely different, more valuable element. It is true leucocytosis is too variable a quantity to rely on alone. The percentage of polymorphonuclears is a valuable surgical aid. The proportionate relationship between the two as first definitely stated by Sondern in 1905 is the central point. This factor depends not on any given quantities nor on absolute percentage of polymorphonuclears but rather on the relative percentage of polymorphonuclears to the total white count. The total white count varies with the resistance of the patient. There is no method by which to evaluate this factor except as brought out in this paper and here lies the key to the disappointment of the surgeon in relying on total white counts in surgery. It is said of a great surgeon now dead that in acute appendicitis a white count was always made and never looked at until after operation. I will try to show that such an attitude is unjustified in the light of our present knowledge and places surgical judgment under a handicap at least two decades behind the times.

Let us consider for a moment the usual blood picture in a normal individual. W. B. C.'s normally run from 7,000 to 10,000. Counts below this are not uncommon, but above this in the usual clinical experience is suspicious of some infective process. More important than the total count is the enumeration of the percentage of the various types of cells which make up the white cells of the blood. We will not repeat what can be seen in any standard text-book further than to state that normally the white cells are made up as follows:

Polymorphonuclear	60-70 %
Eosinophils	1-4 %
Basophils	0.25-0.5 %
Lymphocytes (large and small).....	25-33 %
Large mononuclear and Transitional.....	2-6 %

Recognition of the various types is easy. A few cells which cannot be placed may be put down as unclassified.

Various theories are held by laboratory men as to the origin of these various types, but that is neither here nor there to us as clinicians and surgeons, in their application to diagnosis, prognosis and treatment. A clinical application of the theories of origin in judging somewhat as to the severity of the infection has been made by some foreign workers, especially in Germany,⁶ by noting the number of immature cells—those with

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fewer lobulations. A few pertinent facts in regard to their reactive powers in disease is germane, however, at this point to a full understanding of what will be said further on.

Infective processes of a so-called pyogenic nature are characterized by a local increase of polymorphonuclear cells at the site of infection. If there is a marked degree of accumulation it is visible to the naked eye as pus. On the other hand, marked variation in density can occur from gross pus to a simple microscopic exudation of polymorphonuclear cells seen only in the microscopic slide; such is found in an early acute purulent appendicitis. Accompanying or preceding this local reaction is an increase relative or absolute of the same type of cell in the circulating fluid. The factors causing this increase in the blood and attraction of cells to the local process is intimately bound up with chemotaxis, phagocytosis, immunity, questions not taken up in an article of this scope.

Investigation of the white cells in various conditions has shown a specificity in the type of white cell reaction depending on the local cellular pathology.⁴ A typical example is shown in typhoid fever. The local pathology in the Peyer's patches is a marked proliferation of the reticular endothelial cells of the lymphoid tissues which becomes so marked later as to lead to choking off of nutrition with necrosis. In the blood, although a leucopenia or low total count is usually present, marked increase in the large mononuclears or as they are sometimes called endothelial leucocytes is present. A similar picture is found in malaria. In asthma or intestinal infestation locally in the organ involved there is an infiltration of eosinophils with corresponding increase in the eosinophils in the blood.

The mention of eosinophils leads us to express another fact. The so-called "septic factor" is found in acute pyogenic conditions. In conditions attended with local infiltration of polymorphonuclears there is a polynucleosis depending on the severity of the infection in the blood as has been mentioned before. Along with this there is a drop or absence in the eosinophils—an aneosinophilia. So in an advancing infection the polymorphonuclears go up and eosinophils drop. I personally have not paid much attention to this. In order to properly enumerate the eosinophils 300 to 400 cells must be counted. For extremely accurate work this is desirable,

but for usual clinical work ample indication is obtained from a count of 100 cells at least within limit of error as exact as many other clinical procedures and main attention is on the polynuclear count. We know the eosinophils drop as the polymorphonuclears go up and can bear that fact in mind for verification if necessary.

Countless times in reading over surgical literature one is given a beautiful clinical presentation with history, physical findings, operative report, pathological examination and progress notes without adequate blood study. Perusing a recent article reporting a case of acute intestinal obstruction the total white count was given as 33,000. The clinical picture suggested a grave prognosis. No initial differential count was made and in complete progress notes no daily white count or differential was made, although operation was delayed several days because of various factors. Correct treatment was administered finally in this case. The surgeon of experience relies on his clinical judgment in view of all the evidence and eventually arrives at a true decision. Yet we are habitually not making use of a laboratory aid of inestimable value. I myself was formerly guilty of this error. You can all recall cases of appendiceal abscess with a normal total white count. But what would the differential count have shown? Would it check with the condition found at operation? A justifiable lack of confidence in the total count and dependence on clinical judgment led to operation immediately. Surgeons have come to look askance on a total count singly or in series because of cases such as these. Certain facts, however, are now well known and should be made use of. Todd⁵ in the latest edition makes clear the importance of the white and differential count and presents the Gibson chart as a means of graphic portrayal of the white cell reaction. This will ground the student and those who have access to new text-books, but to the general run of practitioners current articles in the general medical journals are the chief mode of gaining notice. Sondern in 1905 was the first to boldly state that the total white count was proportional to the resistance and the polymorphonuclear count to the severity of infection.

Todd states definitely and clearly the total white count in acute surgical conditions is proportional to the severity of the patient's resistance while the polynuclear count is proportional

to the gravity of the condition. Mild septic conditions show a polymuclear count of 75 or 80. A count over 85 indicates pus somewhere in the system and higher counts, over 90, indicates grave conditions such as a diffuse peritonitis.

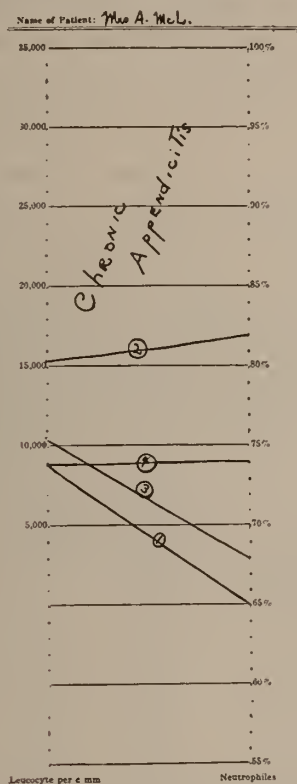


Fig. 1. Case—Mrs. A. McL. Gibson Chart as Modified by Neal and Robnet.

No method so clearly or dramatically brings out at a glance proportionate or disproportionate increase or decrease in either factor than a pictorial representation. Points missed completely or in the background thus become emphasized. Such a relationship may be shown graphically in a number of ways. Gibson's method is perhaps the simplest. Taking the highest total normal count as 10,000 and the highest proportionate polymuclear count as 75, a line is drawn connecting the two on a special sheet. Above and below this base line are horizontal lines one centimeter apart. The total white count is inserted on the left and polymuclear percentage on the right. On the left each centimeter marking indicates 1,000 in the total white count and on the right 1% in the polymuclear count. If the two are in proportion the line is horizontal. If the patient's resistance in an acute, or, as very

often happens, in a chronic condition, is greater than the severity of the infection the line is descending. If the infection is increasing out of proportion to the resistance of the patient the line is ascending. Ordinarily a raise of one in the polymorphonuclear count above normal should be accompanied by a raise of 1,000 in the total count. Thus a differential count of 75 would, if the patient's resistance is good, be accompanied by a total count of 15,000. A raise in polymorphonuclear out of proportion say 78 and a total count of 11,000 would give a marked ascending line and be indicative of severe infection with poor reactive qualities. In the cases with a normal total count in presence of pus if a differential has been done a high polymorphonuclear percentage would invariably be present with a marked ascending line. This has been checked over and over again with pathological examinations of the tissues and found correct. Neal and Robnett⁸ report a series of 227 cases checking the proportionate leucocyte count with the histological examination and in no uncomplicated case was its prognostic import faulty. Gibson⁹ reports similar findings in a series of 705 cases. An important deduction brought out in the graphic study of the blood in these 705 cases are two facts already learned by clinical experience, i. e., the resistance line becomes more and more ascending with advancing age; from its lowest before 20 it rises gradually till it is sharply ascending at 80. Also, in the mildly inflamed appendix it is gradually rising, becoming steeper through the various grades of purulent, thrombosis, gangrene and highest when diffuse peritonitis has set in. In the face of such evidence even the most skeptical observer must be convinced.

Frequent counts should be done where the necessity for operation is in doubt. In the face of an acute abdominal condition with a rising line becoming more acute when checked at 2 or 4 hourly intervals interference is imperative. Routinely such cannot be done in the ordinary private hospital or private practice because the expense is prohibitive. My own practice in average definitive surgery of the abdomen is a complete count done the day before operation, then the first, third and fifth day postoperative. Witter,¹⁰ in a detailed study of the leucocyte count preoperatively and for seven days postoperatively

in a series of 39 clean cases, found the findings return approximately to normal the 5th day.

TABLE 1
(M. S. Witter)

Total White Count				Percentage Polynuclears					
Day of Count	No. of Cases	Minimum	Maximum	Average	Day of Count	No. of Cases	Minimum	Maximum	Average

Preop.	30	6,000	13,000	9,000	Preop.	30	42	80	66
1.....	21	12,000	26,000	18,000	1.....	20	73	94	82
2.....	24	10,000	27,000	16,000	2.....	26	75	93	82
3.....	28	9,000	21,000	13,000	3.....	28	73	93	79
4.....	25	6,000	21,000	11,000	4.....	24	64	87	76
5.....	23	7,000	19,000	10,000	5.....	24	58	74	70
6.....	23	8,000	19,000	12,000	6.....	17	70	84	75
7.....	18	7,000	24,000	13,000	7.....	21	62	83	75

There is then a slight rise in total count and polynuclear due probably to absorption of suture material. The maximum rise occurs on the first day and within four hours of the operation, as shown by her studies. Meleney¹¹ gets practi-

cated routine abdominal operations in my own experience is given below.

The slant of the resistance line on the graphic chart may be expressed in plus or minus units of disproportion. In the original Gibson Standard Chart the divisions were one centimeter apart. If the line slants upward the number of spaces it is above horizontal are given the positive figure such as plus 1, plus 2, et cetera. If the line slants downward the number of units below horizontal is expressed in the negative figure. Horizontal or negative units indicate a good or adequate resistance. Plus units indicate the line slants upwards and resistance is not keeping pace with infection. A gradual progress from positive to negative in successive counts in an acute condition indicate subsiding infection or increased resistance or adequate dealing with the cause. In the preceding table of typical

PREOPERATIVE					POSTOPERATIVE				
Diagnosis	Time	Total Count	Polys.	Unit	Time	Total Count	Polys.	Unit	
Acute Appendix	1	13,000	76	—2	1st day	14,000	80	+1	
Case H. M.					3rd day	12,000	76	—1	
					5th day	8,000	68	—5	
Chronic Appendix	1	8,150	65	—8	1st day	15,500	82	+1	
Case A. McL.					3rd day	10,050	68	—7	
					4th day	9,000	74	0	
Chronic Choletheasis	1	11,250	68	—8	1st day	29,300	80	—14	
Case M. B.					3rd day	23,050	90	+2	
					4th day	12,100	81	+4	
Hemorrhage (Ruptured liver)	1	31,000	82	—14	1st day	27,200	76	—16	
Case S					3rd day	11,800	75	+2	
Dilatation and curetage	1	20,150	76	—9	1st day	9,300	60	—14	
Incomplete abortion					3rd day	8,750	62	—12	
Case W. H. H.									
Dilatation and Curetage	1	8,000	65	—8	1st day	11,450	72	—5	
(Menorrhagia)					3rd day	12,000	73	—5	
Case A. P.					5th day	10,000	68	—7	
Malignant endocarditis and	1	15,250	85	+5	1st day	15,000	91	+11	
septic meningitis					2nd day	27,950	79	—1	
Case L. N.					5th day	28,700	94	death	
Acute Intestinal	I. 9 a. m.	10,800	89%	+13	2nd day	10,200	85	+10	
Obstruction	II. 12 m.	12,900	92%	+14	3rd day	9,020	73	—1	
Chas. W.									
Acute appendix and	1	14,400	59	—20	1st day	13,800	75	—4	
Rt. oophorectomy					5th day	9,000	71	—3	
M. D.									
Septic meningitis and	1	15,250	85	+5	1st day	15,000	91	+11	
malignant endocarditis					2nd day	27,950	79	—13	
L. H. Laparotomy					5th day	28,700	94	Death	

cally the same results in a series of cases. To accord the leucocyte count and differential proper interpretation one must have an idea of the normal values. One soon learns to recognize the typical reaction and an abnormal graphic chart immediately puts one on the alert for complications and leads to further and more frequent checking of the count. A table giving reactions normally occurring in some uncompli-

cases the resistance line is expressed in units of disproportion and it will be seen these statements are borne out. With a standard chart and individual study of his cases the surgeon has a picture in his mind of the graphic record of the count and as a rule this is easier to comprehend and compare than to think in units of proportion.

Although a special chart is desirable, such as

used by Neal and Robnet, it is not absolutely necessary. The ordinary temperature chart has been used by me and has the advantage of keeping all the data together so that in observing the temperature reaction the surgeon has the blood examination in mind at the same time. One merely needs to adopt some standard base line and have the laboratory technician draw the graphic line when she enters the blood count on the laboratory sheet.

After using this data for a time no surgeon

count taken together are an extremely valuable prognostic and diagnostic aid in surgery.

2. A graphic method with pre-operative and repeated post-operative count should be routine.

3. Complications are indicated before clinical signs are evident and lead to earlier, more effective, treatment.

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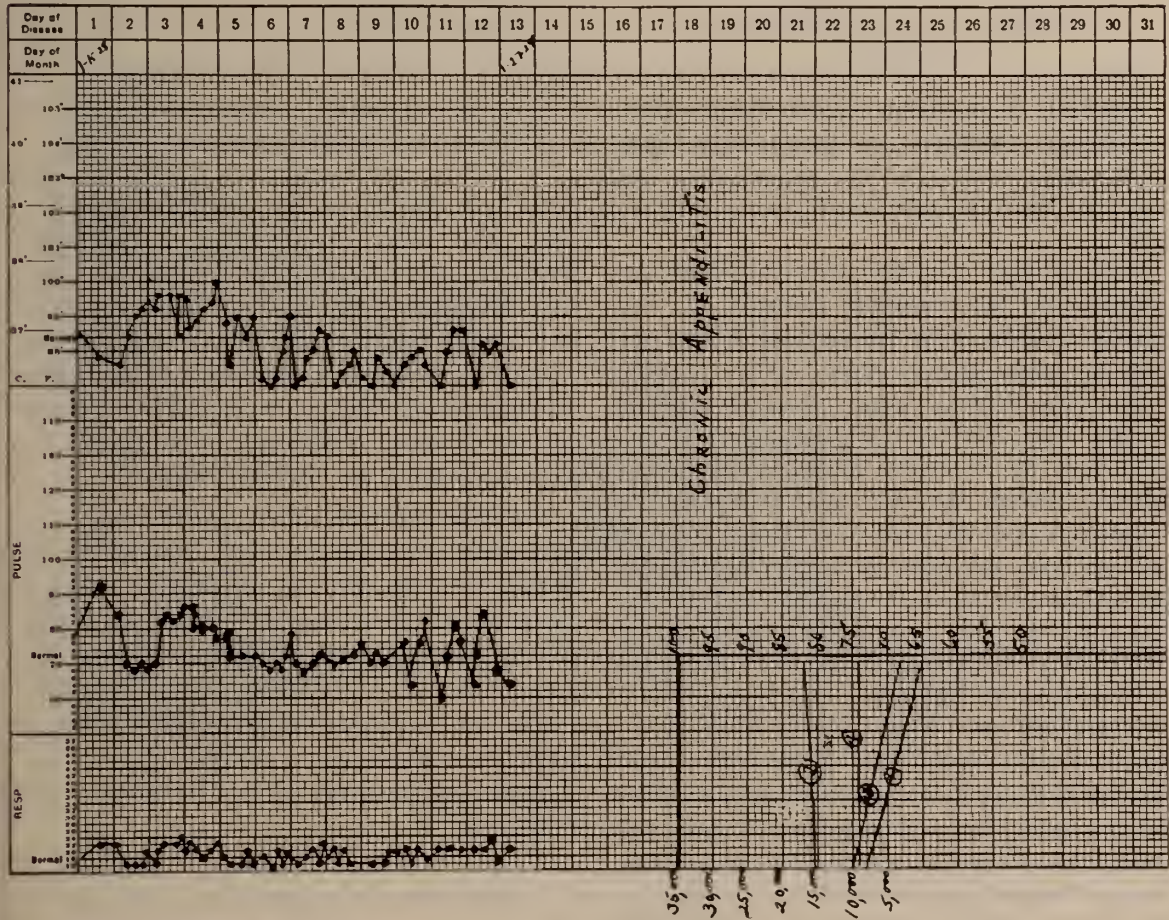


Fig. 2. Case—Mrs. A. McL. Improvised Graphic Chart on Ordinary Hospital Record.

but can be convinced of its value. The study of the white cells was used more 20 years ago than it is today, chiefly through false impressions, misunderstanding and lack of knowledge. The statement of one or two great leaders becomes handed down and none takes the trouble to investigate the fallacy.

CONCLUSIONS

1. The total white count and differential

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CERTIFIED MILK*

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CHICAGO

The Milk Commission of the Chicago Medical Society has asked me once more to speak before your branch of this organization and point out the value and importance of certified milk.

Since we know that milk is the only food that contains all the elements necessary to life, namely, protein—each molecule of which contains at least eighteen amino acids,—carbohydrates, fats, mineral sales—especially calcium, and the very essential vitamins, our next concern must be to obtain it free from foreign material, namely dirt and pathogenic bacteria.

Pasteurization has made milk nearly one hundred per cent. safe from pathogenic bacteria, and has undoubtedly saved thousands of lives and untold suffering. But unfortunately pasteurization and boiling destroy the vitamins, precipitate the lime salts and also change the chemical composition of the protein molecule to a sufficient degree to greatly impair its nutritive value. This was proved by the great increase in rickets among children after the pasteurization of milk was first instituted, and it was learned that orange juice or tomato juice and cod liver oil had to be added to prevent rickets. Then, too, while pasteurization kills the pathogenic bacteria, it does not eliminate dirt in the milk. And I assure you that the amount of dirt in the average milk used for pasteurization is not inconsiderable.

When driving in the country, just look in at the average dairy farm. See the cows in dirty stalls with manure covered flanks, that are milked by people who do not even have to wash their hands, much less have physical examina-

tions, and you will know just what I mean. Why it is only within a year that our milk has come from *tuberculin* tested cows in this district.

The difference between this kind of milk and certified milk is summed up in these requirements:

1. Cows that are in perfect health, tested, watched and examined daily to see that they are in perfect health.

2. Cows that are perfectly clean. Without the slightest chance of a particle of dirt getting into the milk, and the bacterial count kept down from 2000 to 3000. For although the requirement is 10,000 or less, the producers voluntarily keep it down to the lower figure.

Cows fed properly balanced rations the year around, to produce an even quality of milk.

4. Men caring for the cows and milk who have undergone a thorough physical examination, as well as periodic examinations with nose and throat cultures, and also a fecal test to eliminate typhoid carriers. No one exposed to a communicable disease is employed in the production of milk. These men must not only be perfectly healthy but perfectly clean.

The above measures certify a milk of the highest possible standard of purity, retaining all the health and body building qualities that nature intended milk to have, with nothing added and nothing taken away or spoiled by boiling, or pasteurization.

With no pathogenic bacteria present pasteurization is unnecessary.

Whole certified milk is the one perfect food for all ages.

DUODENAL DIVERTICULA WITH ULCER*

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Diverticula, either congenital or acquired, may occur in the duodenum as elsewhere in the intestinal tract. Morgani¹ is generally credited with being the first, in 1761, to describe a duodenal diverticulum which he believed to be of congenital origin. However, Chomel,² in

*Read before Stock Yards Branch, Chicago Medical Society.

*Read before the Chicago Medical Society, March 7, 1928.

1710, reported to the Academy of Paris a case of duodenal diverticulum occurring in a woman 80 years of age, in which there were twenty-two calculi. It is not clear whether this was a true diverticulum or a pouching due to a fistula between the bile ducts and the duodenum.

Frequently such duodenal diverticula, especially the acquired type, are associated with ulcer in their immediate vicinity, and some authors consider acquired diverticula as a pseudo-type,

are recorded in the literature, so far as I have been able to find. The following are the main items of interest in the case:

P. V. B., white, male, aged 35, married, a salesman by occupation was admitted to The American Hospital on November 23, 1927.

The family history was of no importance in connection with his ailment. A review of his past history revealed that he had had the usual diseases of childhood, and that a tonsillectomy had been performed two years previously. He had been troubled with his stomach for the past five years, experienc-

Thickened area of stomach and duodenum

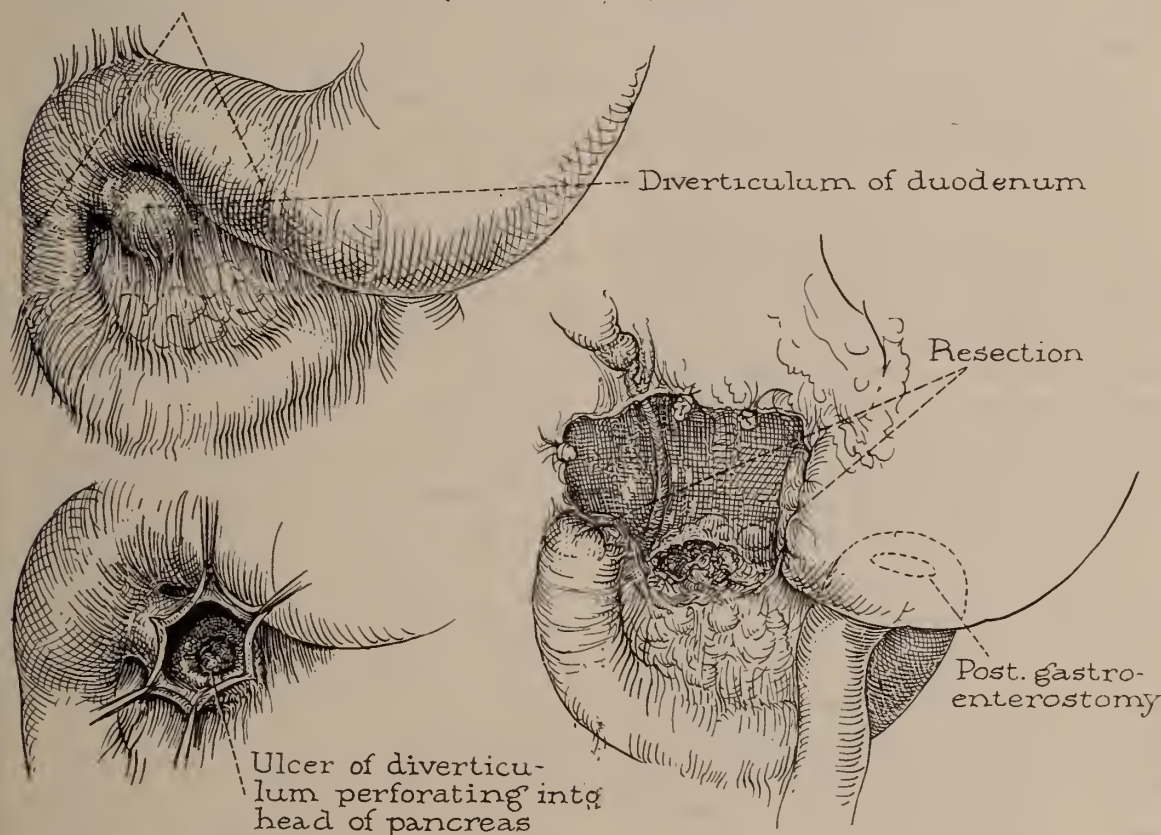


Fig. 1. Diverticulum of duodenum with ulcer perforating into head of pancreas: Technique of surgical management.

resulting from the scarring of healed ulcers with consequent puckering or contracture of the bowel wall, a point to which I shall refer later.

A case upon which I recently operated is of interest not only because of the comparative rarity of duodenal diverticula, but more especially because, although ulcers have been found in the vicinity of such defects, or upon the opposite wall, in this instance the ulcer was situated in the diverticulum itself, and had perforated into the head of the pancreas. Very few similar cases

ing nausea, epigastric distress, with occasional sharp pains and vomiting. Food always relieved the gastric distress. He did not recall ever having vomited blood. He had not been constipated and there had been no hemorrhages from the bowel.

For the past two months the patient had complained of continuous discomfort in the epigastric region. The pains had recently become more acute, but were relieved by taking food. He occasionally had eructations.

Physical examination showed a fairly well nourished male. With the exception of a soft, blowing systolic murmur at the apex nothing abnormal was

found in the chest. The head, neck and extremities were negative.

Examination of the abdomen revealed tenderness in the biliary region and in the epigastrium. The stomach outlines were apparently normal.

The glandular, neuromuscular and genitourinary systems showed nothing abnormal.

The temperature was 98.6° F., pulse 78, blood pressure 126 systolic, 78 diastolic; respirations 20.

Urinalysis, with the exception of an excessive amount of phosphates, was negative. The blood Wassermann reaction was negative. Blood examination showed 4,400,000 red cells, 8,800 leukocytes; hemoglobin 95 per cent. The differential count showed 20 small monocytes, 8 large 70 per cent. polymorphonuclear neutrophils 2 per cent. eosinophiles. Gastric analysis showed a moderate degree of hyperchlorhydria.

Study of the roentgenologic findings disclosed the characteristic manifestations of duodenal ulcer. A rather large shadow, undiagnosed, puzzled the radiographer. Otherwise the gastrointestinal findings were negative.

Operation was advised, and performed on November 26, 1927. Under ethylene anesthesia the abdomen was opened through a pararectal incision. The biliary system was examined and found negative. Upon exploration of the stomach a general thickening of the pylorus was observed which extended well beyond the borders of the first part of the duodenum. Periduodenal adhesions were present which were severed and the pylorus and first part of the duodenum mobilized. This procedure disclosed a diverticulum in the first part of the duodenum, which was markedly thickened, friable, and extended into the head of the pancreas. It was dissected away with difficulty. After dissection it was found that an ulcer situated at the very base of the diverticulum and about the size of a thumb, had perforated into the head of the pancreas. We then proceeded to dissect the thickened pylorus and the first part of the duodenum, which bore this pathological area. After this had been accomplished the wound in the head of the pancreas was sutured. The duodenum was carefully closed and protected with a pad from the large omentum, which was sutured *in situ*. A posterior gastrojejunostomy completed the operation. Peritoneal toilet, cigarette drains and closure of the abdomen.

Postoperative course: The patient reacted well and progressed very satisfactorily until about two weeks after the operation, when a large amount of tarry blood was evacuated from the bowel. Another evacuation of similar type occurred on the following day. From that time on the patient went on to an uninterrupted recovery and returned to his work a few weeks later. At the present time he is enjoying perfect health. The pathologists report disclosed typical manifestations of ulcer within the duodenal pouch.

Perry and Shaw³ (Case No. 11) described the case of a woman, aged 52, who died following a severe hematemesis. At the autopsy the duodenum was found to contain, immediately con-

tiguous to the pylorus, a deeply recessed ulcer, which formed the floor of a pouch about three-fourths of an inch deep. In its base the eroded pancreas was exposed. There were also two other simple, shallow duodenal pouches.

The same authors in another autopsy (Case 234) found a pouch of the duodenum in its posterior wall, three-fourths of an inch from the pylorus. The posterior part of this pouch was fibrous and firmly adherent to the head of the pancreas.

Wilkie,⁴ in 1913, stated that a variety of duodenal diverticula occurs with chronic duodenal ulcer, being found almost exclusively in the roof of the duodenum within one inch of the pylorus. In such cases the wall of the sac is formed of dense, fibrous adhesions, the duodenal wall having been completely destroyed by ulceration. Wilkie said that he had come across three well-marked examples of this variety of diverticulum. In one of them a secondary perforation of the wall of the diverticulum had occurred and led to peritonitis, in a patient only 21 years old.

It will be observed that all these cases occurred in the first part of the duodenum, near the pylorus.

A full discussion of the grounds in support of the congenital origin of some diverticula will be found in the articles by Wilkie⁴ and Buschi.⁵ Keith⁶ believes that diverticula occur at naturally weak spots in the bowel wall. Wilkie mentions the occurrence of congenital duodenal diverticula in fetuses and infants, and Cimmmonds⁷ reports that he saw a diverticulum close to the pylorus in a very young child.

Perry and Shaw³ distinguished two types of mechanical produced diverticulum. In one the sac is produced by the traction of external adhesions. In the other the starting point of the process is an ulcer, the base of which has yielded to the pressure of the intestinal contents. This variety is differentiated from the first by the scarred and ulcerated condition of the mucosal lining, or by inflammatory fibrous tissue.

To the congenital and ulcerative types Wilkie adds a third, which might be called a pulsion diverticulum, which is due to a ballooning out of the duodenal wall in the vicinity of, or opposite to the scar of an old healed ulcer. Carman⁸ states that the most common site for duodenal ulcer is along the superior border *just below the pylorus*. As a result, after the ulcer

has healed, most of the shortening takes place at this point, leaving the lower border redundant and favorable to the formation of pouches or diverticula. In this type the walls of the diverticulum preserve all of the normal layers of the bowel wall.

Cases of duodenal diverticula associated with ulcers in the immediate vicinity of the pylorus have recently been reported by Rosenthal,⁹ and diverticula opposite the scars of healed ulcers in the first part of the duodenum have been recorded by Ritchie and McWhorter,¹⁰ Murchison,¹¹ Dickey,¹² Penhallow,¹³ and others.

In one of Rosenthal's cases the diverticulum was situated caudal to the pylorus in the first part of the duodenum. There was also an infarcted, bleeding ulcer between the pocket and the pylorus, and another healed ulcer scar just beyond the pocket. The walls of the diverticulum were normal. I have already referred to Wilkie's cases of diverticula in the first portion of the duodenum, which were directly associated with ulcer.

Nagel¹⁴ distinguishes between developmental diverticula not associated with ulcer and the acquired type which, as a rule, are definitely associated with ulcer or other pathologic conditions. The defect is not due to perforation on the base of an ulcer, but to muscle spasm and contraction of ulcer scar tissue, with pressure from within the bowel. In such cases the diverticulum is usually situated on the lower anterior border. With this view Moynihan¹⁵ agrees.

Frequency of Duodenal Diverticula. Wilkie found sixty-eight cases of duodenal diverticula reported in the literature up to 1913, most of them being found in autopsy.

Ritchie and McWhorter found seventy-six verified cases in the literature.

Since the introduction of radiologic investigation of the intestinal tract, the discovery of diverticula of the duodenum has been much more frequent. Case,¹⁶ in 1914, reported that in 6,847 roentgenologic examinations of the intestinal tract he had found eighty-five duodenal diverticula. Cole and Roberts¹⁷ found thirty cases upon roentgenologic examination, and Forsell and Key,¹⁸ in 1917, diagnosed a duodenal diverticulum by this method.

Nagel¹⁴ states that duodenal diverticula were

found in 2.2 per cent. of the autopsies at the Mayo Clinic during 1922 to 1924, and during the same period nineteen cases of acquired diverticula were verified by operation.

Site of Duodenal Diverticula. The great majority of duodenal diverticula occur in the second part of the duodenum, close to the ampulla of Vater. Of the eighty-five cases observed by Case, seventeen were in the first part, forty-nine in the second part and nineteen in the third and duodeno-jejunal portions of the duodenum. All of the twenty cases of developmental type found at autopsies in the Mayo Clinic were in the second part of the duodenum within 3 cm. of the ampulla of Vater, and only four of these were below the ampulla. The nineteen acquired diverticula discovered at the Mayo Clinic during operation were in the first part of the duodenum, and all were associated with ulcer. Only seven of the seventy-six cases collected by Ritchie and McWhorter¹⁰ were in the first part of the duodenum. Buschi⁵ considers that diverticula which occur in the first part of the duodenum are congenital, and this view is also held by Linsenmeyer,¹⁹ who found that only 8 per cent. of diverticula occurred in the first part of the duodenum. This does not, however, exclude the occurrence of congenital diverticula in the second and third parts, although this is very rare.

Size. According to Carman⁸ the diverticular pockets vary in size from 1 cm. in diameter and depth to 4 cm. in depth and 1.5 cm. in width. Nagel states that the size varies from a few millimeters in diameter and depth to pockets 6 cm. long with an average width of 1 cm. to 2 cm. Case observed diverticula as large as a hen's egg.

Sex and Age. Of the twenty developmental type of diverticula reported by Nagel, twelve were found in males, and of the nineteen cases of acquired type, ten occurred in males. Case, however, found that 62 per cent. of the cases occurred in males, with the average age of the patients fifty-six years. In the series reported by Nagel, the average age was forty-six years. One of Rosenthal's cases of associated diverticulum and ulcer occurred in a male patient aged twenty-one. The cases of purely congenital type have been found at all age periods, and in both sexes.

Pathology. As a general rule congenital and

developmental duodenal diverticula do not show any pathologic processes.

Diverticula which arise in the vicinity of, or opposite to, the scars of healed ulcers are usually simple pockets, the walls of which preserve all the layers of the bowel wall. Occasionally they may be the seat of inflammatory or catarrhal changes due to the retention of débris, as in the cases reported by Rosenthal and Bauer,²⁰ in the second part of the duodenum.

In the ulcerated type of diverticula, as a rule, all the layers of the bowel wall are preserved near the orifice of the sac, but elsewhere the muscularis is absent. In such cases, directly associated with ulcer, the wall of the sac is often formed of dense fibrous tissue, the normal structure having been entirely destroyed by ulceration. Wilkie observed three cases of this type.

In twenty-one of eighty-two cases of duodenal diverticula collected by Baldwin,²¹ in 1911, the sac had pushed into the head of the pancreas, but in only a few instances was there any evidence of inflammation. In Akerlund's²² case the sac held a mass of necrotic pancreatic tissue, and Case observed the same thing. Nagel stated that some of the diverticula observed in the Mayo Clinic had wormed their way between the head of the pancreas and the bowel wall; in every instance there was close association with the pancreas, many of the diverticula being completely buried in it. In my case the ulcer in the sac had perforated into the pancreas and the head was much eroded.

Ordinary duodenal ulcers, of course, quite commonly penetrate into the pancreas, and in cases where a duodenal diverticulum is associated with a contiguous ulcer this may have occurred and the inflammation spread to the diverticular wall. In one of Rosenthal's recently reported cases of associated duodenal ulcer and duodenal diverticulum an active ulcer had penetrated into the head of the pancreas, which had to be removed. The diverticulum was not pathologic in this case, which was quite different in this respect than mine.

Treatment of Duodenal Diverticula. No standardized surgical treatment can be indicated in a case of this type, and the surgeon must act on his own initiative according to the conditions found. In the simple type of diverticulum closure of the sac, with trimming, may suffice.

In the ulcerative type a more or less extensive resection may be indicated, but in active ulceration with involvement of the pancreas Rosenthal found it necessary to remove the pyloric part of the stomach and part of the duodenum in this vicinity, as well as a portion of the head of the pancreas. He used the Billroth No. I type of closure.

In my case I performed a Billroth No. II operation, with removal of the pylorus and the pathologic first part of the duodenum, and the posterior gastrojejunostomy. Part of the head of the pancreas also had to be taken away, and the wound sutured. The operation in this case was particularly difficult because of the friable condition of the duodenal stump, which prevented the sutures from holding. Omental peritonization was necessary.

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TREATMENT OF GANGRENE OCCURRING IN DIABETIC PATIENTS*

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In presenting this case of gangrene of the foot I wish to call to your attention one of the distressing diabetic problems. While the cases of diabetic gangrene are not numerically large, they constitute a large percentage of the diabetic patients found in the free clinics and the county institutions. There are two obvious reasons for this; first, a conservative attempt to save the leg requires a long period of bed rest in a warm atmosphere; second, surgeons are unwilling to operate on such cases, although their judgment tells them that an operative procedure is indicated.

Types of Gangrene—When the occlusion involves either the arcuate or one of the metatarsal arteries the gangrene presents its major manifestations on the dorsum of the foot and in the corresponding toes. On deep pressure there is no tenderness on the plantar surface of the foot. A gangrene in this location tends to remain relatively dry because the amount of tissue excluded from circulation is not great. If a dressing of sterile vaseline be applied the opportunities for secondary infection will be reduced to the minimum. Again, there is a relatively small opportunity for the return flow of blood from this gangrenous area reaching the general circulation and carrying toxic bodies. Experience has shown that this type of gangrene may often be treated conservatively for a considerable period without endangering the patient's life. Furthermore, conservative treatment often renders it possible to save the foot with an amputation of one, two, or three toes.

When the gangrene involves the plantar artery, a different picture is presented. The foot begins to swell, pain is great, and plantar tenderness is marked. This is serious and rapidly endangers the patient's life.

Case Presentation—This patient furnished an instructive study in these types of gangrene. He is a white male aged sixty-two years, who developed some gangrenous patches on the toes of

his right foot in 1926. These healed without surgical interference. In August, 1927, these same toes became involved. They were treated conservatively for a while in another hospital, but they eventually had to be removed. You can easily see the absence of the four toes and the solitary great toe remaining. In other words, he had an involvement such as I described under the first type of gangrene. Conservative treatment on the first occasion saved the toes; on the second it saved the man's foot without the toes. On April 14, 1928, the middle toe on the left foot began draining. This was preceded by a severe pain in the left heel. On entrance to the hospital April 24, 1928, he gave definite evidence of involvement of the plantar artery with swelling of the whole foot and marked plantar tenderness. He had what may be called third degree gangrene—the dangerous gangrene—the gangrene demanding action. The history further shows that this man had not been able to sleep for several nights because of pain in the foot, and that he had practically lost his appetite. The examination revealed a right foot with one remaining toe and the scar of the former surgical operation. The left foot was discolored, swollen, was draining freely from the third and fourth toes, was cold to touch, and tender to plantar pressure. Pulse was 120, temperature 101, blood pressure 160/70. The tongue was dryer than normal, although the patient did not complain of thirst. The radials were not especially sclerotic. The eye grounds showed moderate arteriosclerosis but no vascular changes such as occur in the retinitis characteristic of this condition. The urine contained albumin, hyaline and granular casts, sugar, but no acetone. The blood sugar was 204, non-protein nitrogen 60, uric acid 4.96, creatinin 2.31, carbon dioxide combining power 35. At the patient's insistence the case was given the benefit of conservative treatment for a period of ten days. The insulin dosage was gradually increased until he was getting 80 units per day in divided doses. This covered a glucose intake in diet of 130 grams. The urine showed an output of 2 grams per day. At the close of this period the fasting blood sugar was 140, non-protein nitrogen 53, uric acid 4.15, carbon dioxide combining power 33. The temperature and rapid pulse persisted. It was, therefore, obvious that the man's general

*Clinic given at the Research and Educational Hospital before the Medical Section of the Illinois State Medical Society.

condition had not improved through this conservative management.

Some Physiological Effects of Gangrene—Suppose we examine more critically this clinical picture. The foot was a moist mass of tissue, which was a breeding ground for saprophytic organisms and which was still sufficiently connected with the general circulation to allow of rather free absorption. These products of putrefaction are potent toxins. Almost everyone is familiar with cases of food poisoning and with the symptoms of ptomain poisoning, which follow the ingestion of meat which has undergone bacterial decomposition. The cardinal symptoms are gastro-intestinal cramps and diarrhea. For the same reason a diabetic with a gangrene may complain of abdominal cramps and looseness of bowels. He may even express surprise that his constipation of years' standing has suddenly improved, since his foot became sore, and he may even request a little medicine to check the bowel movements. If the physician is not familiar with this symptom he in turn may be surprised at the difficulty with which the diarrhea is controlled. He will probably start with a bismuth preparation, and, when he finds that this does not act so well, will resort to paregoric and powdered opium without lessening the number of bowel movements. In my experience such a diarrhea is often controlled with the greatest difficulty.

A second effect of these toxins is on the circulation. The total effects have been grouped together under the name of "Toxic Shock" and this shock state has been analyzed experimentally by making use of histamin as the intoxication agent. Small doses of histamin dilate the capillary bed so that it may be two to three times its former size. At the same time the permeability of the capillary walls is increased and the fluid portion of the blood extravasates rapidly into the lymph channels. This reduces the blood volume so that there is a real concentration of the blood, and this lessened blood volume is circulating in a capillary bed which is from three to four times too large for it. Finally, since the blood is concentrated, the viscosity is increased and the capillary friction is increased. The heart then begins to beat more rapidly to compensate for this failing volume of blood and the picture of cardiac collapse pre-

sents itself. It is only a secondary cardiac failure; the primary failure is in the capillary bed with an inadequacy of blood volume. This is the condition which Cannon spoke of as an "Exemia" and noted that it was the important physiological defect in shock.

A third effect of toxic absorption is on the kidneys. This may vary from a mild retention of nitrogen to a reduction in urinary volume or a suppression of urine. This may be due to a specific effect on the kidney cells or to an effect on the kidneys through the circulation and the glomeruli in particular. In this patient, it should be noted that a nitrogen retention and a nephritic acidosis (retentive acidosis) existed. How much of this kidney effect is due to the recently established gangrene and how much is due to long standing disease of the kidney can be determined only by the future course of the case.

A gangrenous foot carries a fourth threat to the patient, that is, the possibility of a pulmonary infarction with a secondary broncho-pneumonia. While the possibility of this accident is remote, since the occlusion is on the arterial rather than the venous side, yet it should not be ignored.

Amputation—Treatment of Choice—From the above considerations it is obvious that there was but one indication and that was for amputation of the foot. From a surgical viewpoint the patient was a poor risk. The surgical consultant suggested that a preliminary blood transfusion would make him a better risk. So a transfusion of 425 cc. of citrated blood was given on May 5, 1928, and the leg amputated above the knee on May 6, 1928. The amputation was done at 11 a. m. At 4 p. m. the patient was eating his usual feeding and drinking freely. On the day following the operation the patient followed his regular schedule of eating and insulin injections. Since then he has made an uneventful recovery.

It is often surprising how well these patients tolerate the immediate operation. As a rule they do not develop any serious vomiting, a thing which is most feared in the post operative management of diabetics. They are more apt to develop kidney insufficiency with all of its complications. If this does not occur, then the length of convalescence is determined by the

nature of the blood supply at the site of the amputation. If this is good, rapid healing occurs; otherwise a draining stump may exist for a long period of time. The present patient, in spite of his nitrogen retention, did not develop a kidney insufficiency and he has a stump which is healing satisfactorily.

The results of the amputation may best be summarized as follows:

- 1. Immediately the temperature disappeared, the pulse dropped, and the profuse night sweats stopped. In short, he lost his toxic state.
- 2. The sugar tolerance increased rapidly. Before the operation 80 units of insulin were required to keep his urine relatively sugar free on an intake of 130 grams of glucose. Three days after the amputation he was taking 30 units and at the end of seven days 20 units and the urine remained entirely sugar free.
- 3. The kidney function showed evidence of some recovery as shown by the blood chemistry studies.

	Pre-Operative 8 days	Post-Operative 9 days	15 days
Non-Protein Nitrogen	60	49	....
Uric Acid	4.96	3.71	....
Creatinin	2.31	1.93	....
Blood Sugar	154	171	....
Carbon Dioxide Combining Power..	33	....	41

It may be concluded that these apparently poor surgical risks should be subjected to operation. There is good evidence that this man's kidney function was improved by the amputation and it is not amiss to suppose that this improvement will continue. I wish to conclude this clinic by stating that the gangrenes of the type just discussed (the third degree gangrenes) are real surgical emergencies and should be accepted as such by the surgeon. These patients should not be consigned to medical deaths.

A REAL HEALTH BOARD

Strolling along the quays of New York Harbor an Irishman came across the wooden barricade placed around the enclosure where emigrants suspected of suffering from contagious diseases are isolated.

"Phwat's this boarding for?" he inquired of a bystander.

"O," was the reply, "that's to keep out fever and things like that, you know."

"Indade!" said Pat, "Oi've often heard of the Board of Health, but, bejabbers, it's the first time Oi've seen it!"

DONTS FOR EAR, NOSE AND THROAT SURGEONS

- Schwartz in "Eye, Ear, Nose and Throat Monthly," March, 1928, gives the following:
- 1—Do not use the carbolic-menthol mixture to relieve pain, except in otitis externa.
 - 2—Cases of furunculosis of the external canal should not be irrigated.
 - 3—Don't be in too great a hurry to open inflamed gums, especially in children.
 - 4—Wax should be washed out of the canal, not dug out.
 - 5—The turbinate ought not to be sacrificed too readily.
 - 6—Do not figure on relieving obstructed nasal breathing by a septum operation.
 - 7—Only diseased tonsils should be removed.
 - 8—The transillumination test is often misleading in sinus diagnosis.
 - 9—Radical sinus operations are rarely necessary.
 - 10—Avoid instrumentation in laryngeal affections.
- These suggestions represent the results of many years of close observation.

OUR OWN BODIES

"You know the model of your car;
You know just what its powers are.
You treat it with a deal of care
Nor tax it more than it can bear.
But as to self—that's different;
Your mechanism may be bent,
Your carburetor gone to grass,
Your engine just a rusty mass.

Your wheels may wobble, and your cogs
Be hauled over to the dogs.
And you skip and skid and slide
Without a thought of things inside.
What fools, indeed, we mortals are
To lavish care upon a car
With ne'er a bit of time to see
About our own machinery!"

—John Kendrick Bangs.

WHO IS LOONEY?

A clergyman had occasion to preach to the inmates of an insane hospital. During the sermon he noticed one of the patients listening most intently; his eyes riveted upon the speaker's face, and body bent forward. His interest was most flattering. After the service, the preacher noticed that the man spoke to the superintendent, so as soon as possible, he made this inquiry: "Didn't that man speak to you about my sermon?"

"Yes," was the reply.

"Would you mind telling me what he said?"

The superintendent tried to evade, but the preacher insisted.

"Well," he said at last, "the man said, 'Just think, he's out and I'm in.'"

Society Proceedings

ADAMS COUNTY

The annual business meeting of the society, held at the Elks' Culb in Quincy, December 10, 1928, was attended by 32 members.

Dr. O. F. Shulian presented a patient on whom he had operated for carcinoma of the bladder. Following the operation x-ray treatment was given. The patient was clinically well ten months after the operation and, in spite of the fact that more than half the bladder had been removed, his bladder capacity was greater than before the operation. Dr. Harold Swanberg gave a report of the interesting events in connection with the annual meeting of the Radiological Society of North America held in Chicago during the previous week.

Drs. Martha Anderson, Norbert Blickhan, and C. N. Becker were elected members of the society. Dr. Irwin was called upon for a brief report concerning the activities of the entertainment committee during the year. In the absence of Dr. R. A. Harris, Dr. H. S. Maupin gave a brief report for the library committee. Dr. J. A. Koch gave a very comprehensive and detailed report concerning the office of the treasurer during the year. Dr. Harold Swanberg read the report of the secretary, and Dr. W. H. Baker made a few remarks concerning the president's office.

Dr. J. W. E. Bitter was elected president for the ensuing year; Dr. H. S. Jurgens, first vice-president; Dr. H. S. Maupin, second vice-president; Dr. Harold Swanberg, secretary; Dr. J. A. Koch, treasurer; Dr. Ralph McReynolds, medical legal member; Dr. T. B. Knox, delegate for two years; Dr. Walter Stevenson, alternate delegate for two years; Drs. Miller and Cohen, censors for two years. At this time Dr. J. W. E. Bitter presented his resignation as member of the Board of Censors, and Dr. Ray Mercer was elected to serve as member of the Board of Censors for three years; Dr. E. L. Caddick to fill the unexpired term of Dr. J. W. E. Bitter (2 years) as member of the Board of Censors; Dr. C. A. Wells, member of the library committee for three years.

At this time the president appointed Dr. Center and Dr. Williams to escort the newly-elected president, Dr. Bitter, to the chair. Dr. Bitter expressed his appreciation for the honor conferred upon him, pledged himself to cooperate in every way possible to make the ensuing year a success. A motion presented by Dr. J. A. Koch that the dues for 1929 be continued at \$20 was carried. A motion presented by the secretary that the society renew its contract with the present publishers for the *Quincy Medical Bulletin* for 1929, which entails an expense of \$100, was carried. Dr. Warren Pearce made a motion that the secretary be given the same honorarium as last year, namely \$100. Carried. The library committee was instructed to bring in

a full report of the proposed expenses to furnish and maintain the library, to be made to the society at a subsequent meeting. The secretary made a motion that the January meeting be a social meeting and be referred to the entertainment committee with full power. Carried. The secretary made a motion that honorary membership be conferred on Dr. Joseph C. Bloodgood of Baltimore, Maryland. Carried.

Meeting adjourned at 11:15.

HAROLD SWANBERG, M. D., Sec.

CHRISTIAN COUNTY

The Christian County Medical Society met November 27, 1928, at the Taylorville country club for the third annual Thanksgiving dinner. Thirty-nine plates were served with turkey and the good things that go with it and if you think we did not have a nice time you have another think coming.

The doctors brought their wives along to grace the tables and increase the enjoyment and the occasion was all we had expected. One thing marred the evening and made one of our members late. Dr. H. M. Wolfe stepped into his office for a few moments before starting and when he went out to get into his car he found it was gone—had been stolen. He soon had the sheriff on the job with the police and then one of our members took him to the dinner. Before the dinner was over the car was recovered and the thief landed in jail.

After the dinner Dr. Eberspacher of Pana told us of his trip to Europe last summer and Dr. J. F. Miller of Palmer told of his recent hunting trip in Arkansas and the thrilling experiences of the chase.

This dinner is an annual affair and is much enjoyed by all who have the opportunity to attend.

D. D. BARR, Secretary.

COOK COUNTY

Joint Meeting Chicago Medical Society and the Radiological Society of North America, Dec. 8, 1928

Professor Arthur Compton, University of Chicago—"Some Physical Effects of X-rays."

Professor William T. Bovie, Northwestern University—"The Stuff We Are Made Of." (Illustrated by Lantern Slides.)

Joint Meeting Chicago Society and the Chicago Council of Medical Women, Dec. 12, 1928

Roentgen Therapy in Fibromyomata and Other Benign Gynecologic Conditions—Mary Hanks.

(A Clinical Report covering 12 years' experience) Discussion—Maximilian J. Hubeny and Sarah Hobson.

Carcinoma of the Fundus Uteri—Leda J. Stacy, Mayo Clinic, Rochester.

Discussion—Henry Schmitz.

Regular Meeting, December 19, 1928**INFLUENZA**

The Present Influenza Epidemic—Arthur H. Kegel, Commissioner of Health.

Treatment of Influenza—Charles H. Miller.

The Relation of Developmental Abnormalities at the Lumbo-Sacral Junction to Low Back Pain and Disability—Russell Hibbs, New York, N. Y.

Discussion—Paul B. Magnuson, E. W. Ryerson, Hollis E. Potter.

KANE COUNTY

The Kane County Medical Society entertained the members of the Kane County Woman's Auxiliary at a dinner-dance the evening of December 12 at the Elgin State Hospital. About one hundred were present. A very enjoyable program of music and readings was given during the dinner.

1929 officers for the Kane County Medical Society were also elected at this time: President, Doctor Raymond Franklin Dowell of Elgin, and Secretary, Doctor Leland Hurd Anderson of Aurora.

Mrs. H. H. West of Elgin is President of the Kane County Woman's Auxiliary and Mrs. R. T. Hinton of Elgin, Secretary.

KNOX COUNTY

The regular monthly meeting of the Knox County Medical Society was held, December 11, at the Galesburg Club, where, following a dinner, Dr. Peterson of the Surgical Staff of the Iowa State University Hospital, presented a very interesting paper on "The Relation of Cholecystography to Gall Bladder Surgery."

Regular action was taken at this meeting to raise the yearly dues of the members of the Society to eighteen dollars a year to provide adequately for the growing needs of the Society.

B. V. McCLANAHAN, Secretary.

Marriages

KENNETH LINDSEY HOOD, Belvidere, Ill., to Miss Ruth Elizabeth Ziegler of Elgin, at Chicago, November 28.

ARTHUR GRAND PRE FALLS, Chicago, to Miss Lillian Steele Proctor of Brooklyn, N. Y., at Brooklyn, December 6, 1928.

Personals

Walter W. Boyne, East St. Louis, has been elected coroner of St. Clair County and has appointed as deputies Drs. Leo L. Madden, East St. Louis, and Rudolph C. Heiligenstein, Belleville.

Dr. Patrick J. H. Farrell has been elected commander of the Chicago Medical Post of the American Legion for the seventh time.

Arthur H. Compton, Ph.D., professor of physics, University of Chicago, was awarded a gold medal at the annual meeting of the Radiological Society of North America in Chicago, December 6, for his research in the field of light.

Dr. Charles W. Edmunds, professor of materia medica and therapeutics, University of Michigan Medical School, Ann Arbor, addressed the Chicago branch of the American Pharmaceutical Association, December 11, on "Strophanthus and Strophanthins."

Dr. Robert T. Frank, New York, addressed the Chicago Gynecological Society, December 13, on "Three Phases of Gynecologic Plastic Surgery," and Dr. Robert M. Grier on "An Analysis of Fifty Cases of Consecutive Ectopic Pregnancies."

At the annual banquet of the Radiological Society of North America, December 6, William T. Bovie, Ph.D., professor of biophysics, Northwestern University Medical School, was awarded the John Scott medal, a Philadelphia award which includes \$1,000, for contributions to medicine on the study and development of equipment whereby incisions may be made with an electric current instead of the knife. Electrical surgery, Dr. Bovie said, will find its greatest usefulness in the field of general surgery. Operations which usually are accompanied by much loss of blood have been performed by electrical surgery without bleeding. The current closes the blood vessels as it makes the incision.

News Notes

—The new Edgewater Hospital at Ashland and Hollywood avenues, Chicago, has been opened.

—The Physicians' Fellowship Club, 2451 Kedzie Boulevard, was addressed, December 7, by Dr. Norman Zolla on "Pseudo-Charity, Part and Full Pay Clinics and the Impoverishment of American Physicians."

—The Chicago Council of Medical Women will be addressed, January 4, at the Medical and Dental Arts Club, by Dr. Alice K. Hall on "Ophthalmoscopy in General Disease," and by Dr. Agnes Beulah Cushman on "The Eye in the Diagnosis of Brain Disease."

—The Chicago Surgical Society held its December meeting at the Cook County Hospital in the morning, December 7. Among others, Dr.

Eugene St. Jacques, Montreal, read a paper on "Clinical Aspects of Splenomegaly," and Dr. Norman S. Shenstone, Toronto, on "Treatment of Empyema Tuberculosis."

—The Chicago Society of Internal Medicine was addressed, December 17, at the City Club by Dr. William J. Gallagher on "Effect of Acid Injection and Trauma on Jejunal Transplants to the Stomach"; Dr. Alfred Koehler, "Hormones of the Suprarenal Gland," and Dr. Harry Singer, "Recovery from Free Perforation of Peptic Ulcer Without Operation."

—The Illinois State Trudeau Society met at Champaign in conjunction with the county medical society, December 13. The speakers were Drs. Clarence L. Wheaton, Minas Joannides, Robert S. Berghoff, Frederick Tice and Newell C. Gilbert, all of Chicago; Walter H. Watterson, Maywood; Frank Deneen, Bloomington, and William D. Chapman, Silvis.

—The Institute of Medicine and the Society of Medical History of Chicago will meet jointly, January 25; Dr. Edmund Andrews will read a paper on "The Origins of Greek Medicine," illustrated; Dr. Benjamin Barker Beeson, "Corvisart: His Life and Work," and Dr. William Snow Miller, University of Wisconsin, "John D. Godman: Anatomist, Naturalist and Medical Editor."

—The fifty-fifth annual meeting of the North Central Illinois Medical Association was held at Peoria, December 4, under the presidency of Dr. William A. McNichols, Dixon. Among others, Drs. Carle E. Black, Jacksonville, presented "A Study in Cholecystography"; Francis L. Reder, St. Louis, "Remarks on Paralytic Ileus"; Arthur Sprenger, Peoria, "The Obstructive Prostate and Its Treatment," and James P. Houston, Sterling, "An Old Doctor's Reminiscences." Among the speakers from Chicago were Drs. Samuel S. Winner, Samuel J. Burrows, Clarence W. Hopkins and Roy E. Flesher.

—The Illinois Masonic Hospital, Chicago, is undertaking to raise \$750,000, which is to be used to pay off the mortgage, enlarge the nurses' home, and for endowment for maintenance of the hospital. The charitable work performed by the hospital in the last annual report is listed as more than \$88,000, of which nearly half was donated by the medical staff. Dr. Thomas R. Ponton, formerly superintendent of the Vancouver General Hospital, Vancouver, B. C., and

of the Hollywood Hospital, Hollywood, Calif., has been appointed superintendent of the hospital.

—The Medical Women's Club of Chicago held a Christmas party on December 19 at the Medical and Dental Arts Club on Wabash avenue and Lake street. Women medical students and internes were the invited guests. The beautifully decorated room was filled to capacity. Dr. Julia C. Strawn, president of the club, was toastmistress. The banquet was followed with an elaborate program, consisting of readings, fancy dancing and music. Dr. Julia Holmes Smith, the oldest member of the club, was given a special greeting, to which she cheerfully responded.

—At the Chicago State Hospital, special investigative work is carried on with ketogenic diets and acid producing drugs in the treatment of epilepsy. Eighty patients including all kinds of epileptics and feeble minded persons with convulsions have been under treatment for several months. A specially trained dietitian has supervision of the menus and has made the diet so attractive that practically no objections have been made by the patients. Affiliated nurses from the State School for Psychiatric Nursing are in charge of the nursing work. Laboratory work to determine the changes in metabolism of patients in acidosis is carried on.

—The middle section of the American Laryngological, Rhinological and Otological Society will meet jointly, January 9, 9 a. m., with the Chicago Laryngological and Otological Society at the Palmer House. Physicians are cordially invited. The program includes ten papers for the day with speakers from several cities. No essay will occupy more than fifteen minutes. Visiting members will be guests of the local society at luncheon and dinner. Others may obtain tickets at the desk. Dinner will be informal. The evening speakers will be Dr. Arthur M. Corwin, Gordon J. Laing, Ph.D., dean, Graduate School of Arts and Literature, University of Chicago, and Dr. Morris Fishbein, editor of *THE JOURNAL*. Clinics will be held at various hospitals the following day.

—The state department of health reports that maternal hygiene made a gain in Illinois last year, when deaths of mothers resulting from childbirth complications dropped 15 per cent. below those of 1926. The number last year was

717. The leading cause of maternal deaths was puerperal septicemia, which caused 234. Albuminuria was the second important cause, accounting for 187 deaths. Twenty-five counties in the state last year escaped without the loss of a single mother from puerperal causes, and their total births amounted to 6,315. Two cities, Maywood and Forest Park, whose combined population is 30,000, enjoyed the same distinction. The health department considers that the improvement in maternal mortality is due to the popular application of scientific medical knowledge. The lowest mortality figures on record in Illinois among both mothers and infants are those for 1927.

—Heart disease in Illinois last year, the state department of health says, not only led the mortality column again, but took an upward step. Deaths attributed to heart disease in Illinois, exclusive of Chicago, rose from 7,704 to 8,089, bringing the rate up to 192 per hundred thousand of population; 35 per cent. of these 8,089 deaths were among persons under 60 years of age. The fact that 595 of them were in persons under 40 years of age leads to the conclusion that a considerable number of these deaths are preventable. The second highest cause of death in downstate Illinois was nephritis, which accounted for 4,769. About 23 per cent. of the deaths from chronic nephritis occurred among persons less than 60 years of age. The third chief cause of death last year was cancer, with 4,346 deaths, and a little more than half of these were in persons less than 60 years of age. Suicide last year was led by only twelve other causes. In Illinois, outside of Chicago, 621 persons killed themselves, an increase of fifty-five over 1926. Homicide declined slightly, the number falling from 327 to 308. Deaths due to automobile accidents increased, and those from railroad accidents declined.

—Dr. Herman N. Bundesen, who became coroner of Cook County, December 3, has announced the appointment of coroner's physicians, each of whom, he said, has been selected with the assistance of an advisory committee from the faculties of the four leading universities in Chicago. The appointments are as follows:

Dr. George J. Rukstinat, for six years assistant to Dr. LeCount, and at present instructor in pathology at the University of Chicago.

Dr. Eustace L. Benjamin, assistant resident pathologist at the county hospital.

Dr. Samuel A. Levinson, assistant professor of pathology at the University of Illinois College of Medicine, and assistant director of research at the Municipal Tuberculosis Sanatorium.

Dr. Chester C. Guy, instructor in pathology at Loyola University since 1924, and pathologist at St. Bernard's Hospital.

Dr. Francis D. Gunn, pathologist at Wesley Memorial Hospital, and associate professor of pathology at Northwestern University Medical School.

Dr. Hamilton Rodell Fishback, assistant professor of pathology at Northwestern University Medical School.

Dr. Paul G. F. Schmidt, resident pathologist for two years at the county hospital, and member of the coroner's staff since last May.

In addition, Drs. E. R. LeCount, professor of pathology and chairman of the department, Rush Medical College, and Richard H. Jaffe, director of the laboratory, Cook County Hospital, and associate professor of pathology and bacteriology, University of Illinois College of Medicine, were appointed as consulting coroner's pathologists. Dr. Bundesen is said to be the first physician coroner in Cook County in sixty-five years.

Deaths

EMMITT H. BOTTOM, East St. Louis, Ill.; Washington University School of Medicine, St. Louis, 1897; a former president of St. Clair County Medical Society; aged 58; died at Christian Welfare Hospital, November 16, of cerebral hemorrhage.

ALMA ELIZABETH BRAUCHER, Lincoln, Ill.; Hering Medical College, Chicago, 1895; aged 70; died, October 30, at the Deaconess Hospital, of carcinoma of the stomach.

CHARLES B. BROWN, Sycamore, Ill.; University of Buffalo School of Medicine, 1876; a Fellow A. M. A.; on the staff of the Sycamore Municipal Hospital; aged 81; died, November 9, of chronic myocarditis.

GEORGE WINSTON IRAY BROWN, Chicago; General Medical College, Chicago, 1878; aged 82; died, December 5, of la grippe and chronic myocarditis.

FRANK M. CLEMENT, Chicago, Ill.; Albany Medical College (N. Y.), 1890; a member of Illinois State Medical Society; aged 65; died, November 14, of arteriosclerosis.

JOHN NEIL COX, Rio, Ill.; Medical Department of

the University of Wooster, Cleveland, 1889; aged 71; died, August 17, at the Cottage Hospital, Galesburg.

OLIVER H. DONALDSON, Chicago; College of Physicians and Surgeons, Chicago, 1894; aged 58; died, September 13, of organic heart disease.

EMILIUS CLARK DUDLEY, Chicago; Long Island College Hospital, Brooklyn, 1875; professor emeritus of gynecology, Northwestern University Medical School; in 1922 visiting professor, Hunan-Yale College of Medicine, Changsha, China, and the Peking Union Medical College, Peking, China; member of the Illinois State Medical Society; past president of the American Gynecological Association; formerly member of the board of education of Chicago; served during the World War; consulting gynecologist to St. Luke's Hospital; author of "Principles and Practice of Gynecology"; aged 78; died, December 1, of cerebral hemorrhage.

DANIEL F. DUGGAN, Alton, Ill.; St. Louis College of Physicians and Surgeons, 1902; member of Illinois State Medical Society; health officer of Alton; aged 55; died, December 9, at St. Joseph's Hospital, Alton.

JAMES WILLIAM GERMER, Chicago; Northwestern University Medical School, Chicago, 1900; a Fellow A. M. A.; aged 56; died, November 13, of myocarditis ad nephritis.

CLARENCE EDMONDS HEMINGWAY, Oak Park, Ill.; Rush Medical College, Chicago, 1896; a Fellow A. M. A.; on the staff of the Oak Park Hospital; aged 57; died at his home, December 6, of a self-inflicted gunshot wound.

EARL L. HENDRICKS, Lanark, Ill.; Northwestern University Medical School, 1903; member of Illinois State Medical Society; aged 48; died, December 15, at Freeport, of influenza and scarlet fever.

WILLIAM HESSERT, Chicago; Northwestern University Medical School, 1892; member of Illinois State Medical Society; chief of staff of Grant Hospital and staff member of Alexian Brothers Hospital; aged 57; died, November 10, of pneumonia.

ALLISON E. LAUVER, Stronghurst, Ill.; Barnes Medical College, St. Louis, 1899; member of Illinois State Medical Society; aged 53; died, December 6, from injuries received in a railroad crossing accident.

CORNELIUS ARTHUR LEENHEER, Chicago; Harvey Medical College, Chicago, 1901; a Fellow A. M. A.; University of Illinois College of Medicine, Chicago, 1909; aged 52; died, November 23, at the Chicago Memorial Hospital, of heart disease and pneumonia, following influenza.

PAUL G. MANLEY, Mount Carmel, Ill.; Miami Medical College (Ohio), 1879; aged 73; a former member of Illinois State Medical Society; died at the

home of his son in Evanston, November 27, of angina pectoris.

ALEXANDER A. MAXIMOW, professor of anatomy, University of Chicago, aged 54, was found dead in bed, December 4, of coronary sclerosis and myocarditis. Dr. Maximow was born in St. Petersburg Russia, in 1874, and received his M.D. degree from the Imperial Military Academy of Medicine in that city in 1899. From 1903 to 1922, he was professor of histology and embryology at his alma mater, and from 1918 to 1922 was a member of the faculty of the University of St. Petersburg. He was a member of the aristocracy of Russia and held the rank of actual state councilor in the imperial army, 1896-1917. In 1922 he left Russia with his wife and sister, and came to the United States, since when he has been at the University of Chicago. Dr. Maximow was the author of a textbook on histology and of about seventy articles on histology and embryology in English, Russian and German, and was an authority on blood and connective tissue. He emphasized the functional approach to anatomy, and much of his research was done on living tissue. He was a member of the American Association of Anatomists, the American Association of Pathologists and Bacteriologists and the American Association for Experimental Pathology, and was able to speak a number of languages. In his death the profession has lost a great investigator.

ROBERT H. T. NESBITT, Waukegan, Ill.; General Medical College, Chicago, 1896; aged 77; died, December 2; after an illness of several years, complicated by a recent fracture of the hip.

THEODORE REAGAN, San Diego, Calif.; Rush Medical College, Chicago, 1893; practiced for many years at Danville, Ill.; aged 63; died at Oak Park, Ill., as the result of paralysis which occurred in June.

I. CARSON SMITH, Stockton, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1884; a Fellow A. M. A.; past-president of the Jo Daviess County Medical Society; president of the school board; aged 68; died, November 8, of pernicious anemia.

HOMER MERRICK THOMAS, Chicago; Rush Medical College, 1882; a staff member of Cook County, Chicago and Mary Thompson hospitals; aged 70; died, December 17, of broncho-pneumonia and myocarditis.

ALFRED A. WHIPPLE, Quincy, Ill.; Eclectic Medical Institute, Cincinnati, 1876, and the Hahnemann Medical College and Hospital, Chicago, 1880; aged 83; died, November 14, at the home of his son in Benton Harbor, Mich., of arteriosclerosis.

D. SMITH WISEHART, Decatur, Ill.; Medical College of Ohio, Cincinnati, 1879; aged 75; died, February 21, at the Masonic Home, Sullivan, of gastric ulcer.

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Editorial

THE GREAT AMERICAN MEDICAL ASSOCIATION MUST NOT ALLOW THE CHILDREN'S BUREAU CLAIMS TO GO UNCHALLENGED

LEGISLATION TURNING OVER THE SUPERVISION OF OBSTETRICS AND PEDIATRICS TO A LAY BUREAU IN WASHINGTON MUST BE PREVENTED

It seems to us ridiculous that the American Medical Association comprising the organized profession of the forty-eight states in the Union should allow the Children's Bureau in Washington to swagger unchallenged before the Nation that it is "stimulating" and "educating" the doctors to improve obstetrics and pediatrics and that any improvement made in either of these branches of medical science in the last seven years is due to the Children's Bureaucrats.

The Newton Bill, better designated the Shepard-Towner-Newton Bill, is before the present session of Congress. The first and best place to stop the Newton Bill, if possible, is in the committee on Interstate and Foreign Commerce. It is our impression that this can be done by a great demand on the part of doctors, medical societies, etc., for hearing before the bill is reported out. If the committee is convinced that it cannot "get away" with reporting the bill out without adequate hearings, as it did in 1926 and that the doctors and other opponents will "raise Cain," if hearings are held, it is possible that in the rush of legislation in the remaining days of this session the bill can be kept in committee.

Medical societies throughout the Nation should demand that no permanent legislation turning over the supervision of obstetrics and pediatrics ("care of maternity and infancy") to a lay bureau in the Labor Department in Washington, be reported out of committee until and unless a complete investigation is held, and representa-

tives of the medical profession and others are heard fully in opposition.

COUNCIL OF THE ILLINOIS STATE MEDICAL SOCIETY CONDEMNS NEWTON BILL.

At the council meeting of the Illinois State Medical Society, January 7, 1928, the following resolution condemning the Newton Bill (better designated as the Sheppard-Towner-Newton Bill) was adopted:

WHEREAS, the judgment of the Illinois State Medical Society in opposing, in 1921, the enactment of the Sheppard-Towner Maternity Bill was confirmed by the A. M. A. in 1922 when it adopted a resolution condemning its enactment . . . and . . . vindicated when Congress in 1926 refused to perpetuate the Sheppard-Towner Act and limited it to the definite furthered term of two years which will expire June 1929, and

WHEREAS, the Newton Bill is a direct violation of the agreement of the proponents of the Sheppard-Towner Act in 1926,—the proponents of the Sheppard-Towner legislation agreed not to ask a further extension after that Act had expired, and

WHEREAS, the friends of the Sheppard-Towner Act, unwilling to respect the determination of the people's elected representatives in Congress, have determined to perpetuate in spite of the agreement this part of the work of the Children's Bureau of the Federal Department of Labor and to that end have caused to be introduced, in Congress, House of Representatives Bill No. 14070, May 1928, by Representative Newton of Minnesota, which perpetuates the one million dollar per annum fifty-fifty appropriation of money, continues the meaningless and ineffective provision against the invasion of American homes by the busybody investigators and whisperers of the Children's Bureau—such provision being meaningless and ineffective because they carry no penalty, and

WHEREAS, the so-called Newton Bill goes even farther than the Sheppard-Towner Act and provides for a partnership between the United States Government and any group or foundation, thereby carrying interference, by an employee of the Children's Bureau of the Department of Labor of the U. S. Government, into the homes within a state, over the head of the State itself,

by way of a private corporation which is merely a creature of the State by reason of a charter, and

WHEREAS, the Newton Bill is subversive of the ideal, traditions and institutions of this country in that it expands the police power of the state to the point of inhibiting the proper exercise of executive, legislative and judicial departments of government, and vests all power in individual or group of individual employees in the Children's Bureau of the Department of Labor in the cabinet of the President and bars the judiciary from restraining abuse thereof, therefore be it

Resolved, That the council of the Illinois State Medical Society in meeting assembled, January 7, 1929, hereby opposes the enactment of the so-called Newton Bill, and urges members of Congress from Illinois to work and vote to defeat its enactment, and be it further

Resolved, That a copy of this resolution be sent to the Congressmen and Senators from this state and to the medical and lay press with a request therein implied that they lend their best efforts to the defeat of this vicious legislation.

ILLINOIS ONLY STATE REPRESENTED OFFICIALLY AT NEWTON BILL HEARING

When the council of the Illinois State Medical Society met on January 7 at Peoria, Ill., vote was made to send to Washington, D. C., for the hearing, January 24, of the Newton Bill, better designated the Sheppard-Towner Newton Bill before the committee on interstate and foreign commerce the Chairman of the Council, Dr. W. D. Chapman, of Silvis, Ill. It will be remembered that it was in no small degree due to Dr. Chapman that Illinois had the good sense to refuse to co-operate with the Sheppard-Towner Act. Dr. Chapman is a past master of eloquence and economics and *sound* medical science. Dr. Chapman's faculty of expression, his ability to think well on his feet, his exact knowledge, marvelous memory and analytical mind coupled with his sense of justice and honesty make him an adversary to be feared and a champion of rare calibre. At the original hearing of the Sheppard-Towner Bill in 1921, Illinois was the only State Medical Society represented officially and at the Newton Bill hear-

ing, Illinois is again the only State Medical Society with such representation. Dr. Chapman can be depended upon to present at Washington the facts against the Newton Bill with an efficiency possessed by few men in America.

Note and comment: As we go to press we are in receipt of much information regarding the Newton Bill hearing. The following is of interest:

Among the speakers in support of the Newton bill, introduced by Mrs. Maud Wood Park, Portland, Me., formerly president of the National League of Women Voters, were:

Dr. Samuel J. Crumbine, New York, of the American Child Health Association, of which President-Elect Herbert Hoover is president.

Dr. Arthur T. McCormack, Kentucky, state health officer.

Dr. Ennion G. Williams, Richmond, Va., state health commissioner, representing the Conference of State and Provincial Health Authorities.

Miss Hazel Corbin, general director, Maternity Center Association, New York City.

Miss Mary E. Murphy, director, Elizabeth McCormick Memorial Fund, Chicago.

Mrs. E. E. Danley, National Board, Young Women's Christian Association.

Mrs. Leonard Schloss, National Council of Jewish Women.

Mrs. Florence Kelley, National Consumers League.

Miss Elizabeth Noyes, American Nurses' Association.

Miss Selma Borchardt, American Federation of Teachers.

Edward McGrady, American Federation of Labor.

The opposition to the bill was represented by:

Dr. William C. Woodward, Bureau of Legal Medicine and Legislation, American Medical Association.

Dr. W. D. Chapman, Silvis, Ill., representing the Illinois State Medical Society.

Dr. George W. Kosmak, New York City.

Dr. Augustus Thorndike, Boston.

Mr. Alexander Lincoln, Boston.

Mrs. H. H. Amsden, Concord, N. H., representing Women's Auxiliary of the New Hampshire State Medical Association.

Since the hearing the Editor has received from many persons who were present at the hearing of the Newton Bill, January 24-25, letters commending Drs. Chapman and Woodward for their splendid presentation of the objectionable features of this vicious measure. The members of the Interstate and Foreign Commerce Committee as well as the spectators were deeply impressed by their clear cut portrayal of the many serious objectionable features of the bill.

THE WOMAN PATRIOT CONTENDS THAT THE CHILDREN'S BUREAU SHOULD BE ABOLISHED

The *Woman Patriot*, a magazine dedicated to the defense of the family and the State against feminism and socialism gives the following reasons (December 15, 1928 issue) for abolishing the Children's Bureau.

SHORT REASONS FOR ABOLITION OF CHILDREN'S BUREAU

1. All *legitimate* activities and "investigations and reports" of the Federal Children's Bureau are *duplications*, in part, of *better and more complete* investigations and reports by *other* Federal agencies.

2. All *exclusive* activities of the Federal Children's Bureau are illegitimate bureaucratic or Socialistic *propaganda*.

DUPLICATION is shown as follows:

(1) *Health* of children (which cannot be dissociated from that of mothers, and public health matters in general) so far as it comes within the legitimate functions of the Federal Government, is better and safer in the hands of the trained physicians of the *United States Public Health Service*, than in the hands of a bureau of "social workers" in the Labor Department!

(2) *Education* of children (which cannot be divorced from other educational questions relative to schools, teachers, parents, etc., so far as the Federal Government may gather facts and statistics upon it, comes within the functions of the *Federal Bureau of Education*, in the Interior Department.

(3) *Vital Statistics* of children (infant mortality, births, deaths, diseases, accidents, causes of death, statistics of dependency, delinquency, etc.) are gathered and published fairly and completely only by the *Vital Statistics Division* of the United States Census Bureau—which gathers vital statistics for the entire population, with *no propaganda*. Children's Bureau reports have been repeatedly *juggled*, with the statistics distorted or suppressed to mislead the public into granting more power and appropriations to the Children's Bureau. (See *Cong. Record*, May 31, 1924, July 3, 1926, January 8, 10, 1927; *Woman PATRIOT*, Apr. 1, Apr. 15, 1927.)

(4) *Labor Statistics* of children (and of all others) are covered *completely* only by the Census enumerations; but such *labor statistics* as

may be useful between the general census enumerations can be gathered and published by the *Bureau of Labor Statistics* in the Department of Labor.

American children have not yet been *segregated and isolated* in "colonies" as in the Soviet Union. Children have parents, teachers, schools, homes, doctors, nurses, diseases, occupations, etc., and their health, education, vital statistics and labor statistics can be "investigated and reported" *more fairly and more adequately* by isolating *the subject* from other subjects, rather than *the child* from its parents, school and normal relationships to serve as feeble excuse for a Federal "Children's Bureau."

Four expert Federal Bureaus covering all legitimate facts and statistics the Federal Government has a right to gather and publish about children, are enough!

II. PROPAGANDA of the Children's Bureau is shown as follows:

All the *exclusive* work of the Children's Bureau, that is not a *duplication* of the work of one or more of the other bureaus, is harmful *political propaganda* for Socialistic legislation, and for the increase of the Children's Bureau's own power and appropriations. For example:

(1) Children's Bureau booklets such as Child Care, Infant Care, Prenatal Care, etc., are *health matters*—duplications of better Public Health Service publications.

(2) Children's Bureau "vital statistics" are *notoriously inaccurate* and frequently "colored" to show the need of more power for the Children's Bureau, or for Socialistic legislation, or both. Otherwise, they are mere *partial and incomplete duplications* of data which is accurately and fairly published by the Vital Statistics Division of the Census Bureau.

(3) Children's Bureau "educational" matter is likewise a *duplication* of data in the field of the Federal Bureau of Education, or else *propaganda* to "Standardize" education.

(4) Children's Bureau "labor statistics" are likewise all "colored" to show the alleged need of a revolutionary Federal "Child" Labor Amendment, or of various "minimum standards" of legislation the Bureau seeks to promote—and control.

(5) Children's Bureau investigations and reports that are exclusive, and *not* duplications of work of other bureaus, are all a useless waste

of public funds, when not vicious propaganda for Socialist legislation, advertisements and recommendations of Communist books, foreign "maternity benefits" systems; "illegitimacy laws," doles for mothers or children, etc.

THE WOMAN PATRIOT GIVES REASONS FOR NOT ADOPTING THE NEWTON BILL

Sec. 1. Allows the Chief of Children's Bureau to distribute a \$1,000,000 slush fund (out of the U. S. Treasury) each year "*independently*, or in cooperation" with "child welfare of *other* local associations or individuals" for such "joint services" as she and the cooperating social workers agree upon, almost anywhere in the United States! (Only \$50,000 can be spent in District of Columbia.)

Sec. 2. Authorizes the Chief of the Children's Bureau to appoint *five out of the eight* members of her "Advisory" Committee—of whom *only one* need be a State health officer, *who must belong to the International Health Officers' "Union" to qualify*—and there is nothing in the bill to show either the duties of this "Advisory" Committee or requiring the Chief ever to call them "in conference" or take any of their advice!

Sec. 3. Copied from the Sheppard-Towner Maternity Act carefully provides that *none of the money shall be spent on maternity hospitals or equipment*, so that *no mother or child can get a cent of the million to rent a bed in a hospital or buy a bottle of milk*. The reason for this is that the "social workers" want *the entire fund* for the salaries and "joint services" of baby inspectors and other snoopers! (See Children's Bureau testimony, House Hearings, 1920, for proof of this purpose.)

Sec. 4. Also copied from the present Sheppard-Towner Maternity Act, was *forced into that Act by opponents* in 1921, to safeguard the home. But it is *only a legislative declaration* without effect, because it *carries no penalty clause*. Advocates of the Maternity Act in 1921 were willing to *say* that Children's Bureau agents have not "*any right*" to invade homes and take children away from parents; but they refused to *attach any penalty clause* to this section, so it remains mere "legislative advice."

To sum up, this bill gives the Chief of the

Children's Bureau a *million dollars a year campaign slush fund* out of the Treasury to hire and organize more "social workers" for further *political pressure* for more jobs and more unrestricted millions!

Woman Patriot, December 15, 1928.

THE SHEPPARD-TOWNER ACT WAS BORROWED FROM RUSSIA WHOSE SYSTEM OF MATERNITY ADMINISTRATION IS SO HIGHLY PRAISED BY THE CHILDREN'S BUREAU AT WASHINGTON.
HOW TO BUILD COMMUNISM WITH NON-COMMUNISTS HANDS.

Nadeshda Krupskaya (Lenin's widow), writing in *Pravda*, official Moscow Communist party organ, April 9, 1924, particularly in reference to Pokdovskii's scheme to accomplish the final establishment of positive atheism by using "an enlightened, or purely rationalistic religion" as a "wedge" to drive out religion, reveals a maxim of Lenin's that applies not only to Communist efforts to wipe out religion by working for atheism under false pretense of religion, but to the entire legislative strategy of the Communists. She says:

"Our duty is to apply in practice the maxim of Vladimir Ilich (Lenin): 'We must know how to build Communism with non-communist hands'."

In the columns of this JOURNAL we have repeatedly called the attention of our readers to the workings in this country of the communists, bolsheviks and Russian propagandists and their application of their theories as applies to the practice of medicine. The recent *Sheppard-Towner Act* was borrowed from Russia whose system of maternity administration is so highly praised by the Children's Bureau at Washington. The methods used by the proponents to secure the Sheppard-Towner legislation so exactly parallels the above that we cannot refrain from calling our readers' attention to the coincidence.

The American public have a right to know who is Mme. Kollontai so highly praised by the United States Children's Bureau publication.

In the first place, Mme. Kollontai's first name is Alexandra. Congressman Layton, commenting recently, remarked that "the Sheppard-Towner Maternity Act may be traced to the Children's

Bureau, created in 1913, chiefly through the propaganda of *Madame Kollontai, a Bolshevik, now enjoying the connubial bliss of an eighth husband.*"

Of the Kollontai portfolio the ultimate of the ethics and economics is *abolition of the marriage bond; the advocacy of promiscuity as a relief from prostitution; the elimination of the badge of honor to children born in wedlock and the limitation of the population by birth control as a war prevention process; the feminists' plan of directly removing the legal discrimination of women by their refusal to bear children, save when, where and how they will; with ready relief for quick conception and libido, free and unconfined.*

As portraying the numerous activities and doctrines promulgated by Mme. Kollontai we quote *The Woman Patriot* as follows:

Alexandra Kollontai, head of Russia's Maternity System under the Czar; author of "the most comprehensive study of maternity benefits and insurance in any language," according to the United States Children's Bureau publication, "Maternity Benefit Systems in Certain Foreign Countries" (page 175); who is now Bolshevik Commissar of Public Welfare, *will occupy a place in history second only to that of Judas when the uncensored historian of the future investigates the Russian Revolution.* Hundreds of books have been published on Bolshevism. Practically all *dodge* Alexandra Kollontai. A recent book on Russia prints a full page picture of Kollontai—without a word about her except her name and office. Why? *It is because Alexandra Kollontai's activities, if fully revealed to the world, would discredit Feminism everywhere and prove it a greater menace to both the family and the State than any other form of Socialism?*

The Kollontai material would fill a volume. She is undoubtedly "the most comprehensive" *revolutionist in the world.*

OBJECTIONS TO THE NEWTON BILL,
BETTER DESIGNATED THE SHEPPARD-TOWNER NEWTON BILL

The Newton Bill has the old Sheppard-Towner Bill backed off the map. It is worse than the original act. As the protagonists of the Sheppard-Towner Act cede that this vicious piece of legislation is now practically dead, these

mercenary socialists have proceeded to raise it by proffering a ghost that is stronger than its original entity.

The following objections to the Newton Bill taken from the editor's article "How the Woman's Auxiliary Can Help the Medical Profession," January number, is abstracted for convenience of doctors and lay readers.

OBJECTIONS TO THE NEWTON BILL

The Newton Bill is the most despotic legislative measure for the debauchery of democracy's rights ever perpetrated against the constitution of the United States or the welfare of any nation.

Powers and principles involved in this grant are of a scope that will cumulatively deliver the constitutional rights of the country, the states, the community and the individual home into a communistic thralldom as terrible as any slavery ever visited upon darkest Russia during the rule of the royal Romanoffs. Such activities on the part of a group of selfish, misguided politicians, preying upon misinformed idealists, strike at the very root of what democracy means; of what the United States stands for; of what the constitution of the country represents, and of what, since the earliest settling of the country, patriots, both men and women, have fought and died for. That this tremendous sacrifice of ideals, principles, faith and persons should be thus discounted for the sake of a few idle, ephemeral theories that have been often tried since civilization began, and as often discarded through their own inherent weaknesses, is unthinkable.

What is this "Newton Bill"? Dissected, it resolves itself into an expansion of the Sheppard-Towner bill, all dressed up and intending to go ruthless, prying, devastating authority into the most sacred rights of the home, the family, and the individual. Giving the lie to its early promises of "No extension asked" and expiring in June, 1929, the iniquitous Sheppard-Towner bill, masquerading as an humanity at the outset and battenning upon the credulous imaginations of citizens who felt that by this legislation they might evade some of their civic responsibilities and abet the humanities, the Sheppard-Towner Bill puts forth new life and extends its grasp in the so-called Newton Bill. All that has ever been used in criticism of the Sheppard-Towner Act should, to be truthful, be enlarged and detailed

and emphasized to at all cover the harm that will emanate from the Newton Bill. The simple clause, "and for other purposes," is as broad as the seven seas.

The Sheppard-Towner Act was a rare old haridan of legislation. Exposed in true colors the bill was repudiated. Now, bedizened anew, but the same old Bill still, it reappears as the Newton Bill. Scratch the surface ever so slightly and there appears beyond doubt the personality of the same vile debauchee of sacred rights.

Briefly considered, the facts are these. The Newton Bill, House of Representatives Bill No. 14070, introduced May, 1928, by Representative Walter H. Newton of Minnesota. This bill proposes that the United States commit itself and embark upon a permanent policy for doing certain work in individual states, whereas constitutional authority and practice have, until now, held federal action limited to interstate responsibilities.

The Children's Bureau of the Department of Labor will inherently by this bill be the ruling power in the United States. This bureau, headed by one woman, will become the most despotic influence in the country, imposing a yoke that will annually become more unbearable in its crushing burdens.

The provision in the Newton Bill that federal money may be expended at will and at the whim of a single bureau officer in cooperation with "local associations or individuals" (extragovernmental individuals) brands the entire proposal as a gold digger's phantasy. The money which the Newton Bill proposes in this fashion to appropriate is from tax collections, of which 95.83 per cent. comes from twelve states.

Complete statistics of income for the year 1920, made public Oct. 1, 1922, show that (95.83) ninety-five per cent. of the total tax was paid by twelve states. Out of this ninety-five per cent. of the total specific percentages included:

New York	23.69
Pennsylvania	12.13
Illinois	8.68
Ohio	6.76
Massachusetts	5.82

Total	57.08
Michigan, Indiana, Iowa, New Jersey, Missouri, California, Maryland.....	38.75
	95.83

This leaves thirty-eight states to pay 4.17 per cent. of the taxes from which their profit on the Sheppard-Towner appropriation is easy to figure. For these thirty-eight states "Federal Aid" is a gift indeed. *Illinois is not one of the 38 to profit, but one of the twelve to pay! And in the list of those states that foot the bills, Illinois stands third. Only New York and Pennsylvania precede.*

The expenditure outline would rest not with the States but with the whim of one individual and not might be, but evidently is intended to be disproportionate among several states. It is within the bounds of conception that Illinois contributing 8.68 per cent. as one of the twelve, might receive nothing at all in return. Whereas, states contributing little or nothing would receive maximum sums, if not the entire amount of the sum collected.

If possible the Newton Bill is worse than the old Sheppard-Towner Act as the one million dollars per year is theirs to distribute almost at will without let or hindrance from State Health Boards.

The Newton Bill is "permanent legislation" if passed, and gives this radical bureau that is always usurping both the provinces of the medical profession as well as the political rights of the states and people, a permanent campaign fund of \$1,000,000 a year for distribution among agencies that submit the national care of maternity and infancy by bureaucrats at Washington giving "long distance" or "mail order" treatments to mothers, via the government printing office, and setting "standards" for physicians and nurses that the social workers desire to promote.

This bill purports to be a health measure and if it is such it belongs in the United States Public Health Service, rather than as an appendix to the Department of Labor.

It is within the power of the Newton Bill to force the states to accept inefficient pseudo medical service, whether the states like it or not; for instance, Connecticut, Illinois and Massachusetts have never accepted the co-operation of the Federal Government under the Sheppard-Towner Act. Under the provision of the Newton Bill these states would have forced upon them the services of the Children's Bureau under the provision of partnership between the Children's

Bureau of the federal department of labor financed by and for the spending of the money of the people of the United States. A group of uplifters in the State of Illinois or any other state may be using the money for or with a foundation, for example. With the stage thus set and the "fifty-fifty" appropriation feature satisfied, independent of state cooperation, the executive, legislative or judicial powers of the state could not prevent the operation of this amplified Sheppard-Towner Maternity Bill in Illinois or anywhere else—the legislature and the people notwithstanding.

The Newton Bill perpetuates the \$1,000,000 per annum fifty-fifty appropriation of money: continues the meaningless and ineffective provision against the invasion of American homes by the investigators and whisperers of the Children's Bureau. Such provision is meaningless and ineffective because it carries no penalty for such invasion and puts it up to the American citizen to protect his home from such invasion either by assault upon the invader or by the very expensive way of a writ of injunction.

The Newton Bill even goes farther than the Sheppard-Towner Maternity Act and provides for a partnership between the United States Government and any group or foundation, thereby carrying interference by employees of a federal bureau of a department of the United States government into the homes within a state, over the head of the state itself, by way of a private corporation which is merely a creature of a state by reason of a charter. Through this bill the rights of the individual are nullified. A man or woman will find the political employee dictating as to private and personal liberties of a delicate nature.

The Newton Bill is subversive of the ideals, traditions and institutions of this country in that it expands the police power of the state to the point of exhibiting the proper exercise of the triune powers of government—executive, legislative and judicial, and vests all power in an individual or group of individuals, employees of a Bureau of a Department in the cabinet of the President, and bars the judiciary from restraining abuse thereof.

The Newton Bill is a contemptuous disregard of decency, as contained in the fifty-fifty partnership with busybodies over the determination

of the people of a state as voiced by their representatives in the legislature.

The Newton Bill is a direct violation of the agreement of the proponents of the Sheppard-Towner Act. *In 1926 the proponents of Sheppard-Towner legislation agreed not to ask for a further extension of that act after a period of extension granted had expired.* It was said at the time it was not the intention of some of the proponents to adhere to the agreement and the introduction of the Newton Bill enforces these predictions.

In substantiation of this statement, consider some of the sweeping provisions of the pending Newton Bill.

I. *It is practically unlimited in the scope of its purposes.*

Its title is "To provide a Child Welfare Extension Service, And For Other Purposes." While it is true that the current bill provides an annual appropriation of \$1,000,000 "for paying the expenses of a Child Welfare Extension Service in the Children's Bureau of the Department of Labor, which shall promote the welfare (?) of mothers and children and aid in the reduction of infant mortality," thus confining the expenditure of this particular appropriation to this particular purpose, that is really no purpose at all but one purely political. it must be noted that the title of the Act in the words "*and for other purposes*" permits future extension of this service in other fields by simply changing the scope of services as expressed in the body of the Act.

There is no provision in this Act as to how this annual appropriation shall be allotted to the several States, excepting that it is provided that "not to exceed \$50,000 shall be expended by the Children's Bureau in the District of Columbia." This would permit the Washington Bureau to expend the other \$950,000 wherever it pleased, all in one State if it so desired, or nothing at all in those States that will have contributed, etc.

2. *The United States Children's Bureau may set up child and maternity health services in any State or municipality INDEPENDENT OF THE LOCAL OFFICIAL HEALTH AGENCIES, under the provisions of the Newton Bill.* The proposed law reads: "That of this amount (\$1,000,000) not to exceed \$50,000 shall be expended by the Children's Bureau in the District of Columbia and that the remainder shall be expended *either independently or in cooperation*

with the State or Territorial agencies responsible for or engaged in the promotion of the health or welfare of children, or through such state and territorial agencies, with county or municipal agencies engaged in child hygiene or child welfare work." Note that the breadth of this clause would make it legal for the expenditure of these sums to be directed in any channel—not one penny of which could legally be made to buy a dose of medicine, a shred of clothing, a bite of food, an atom of shelter, or a moment's professional care or any mother or any child. With this money the bureau could go into the banking, bakery, ship building, millinery or automobile business under pretense that it was to benefit "mothers and children," if wished, as this freedom is sustained in the clause "or for other purposes." This is one of the most vicious features of this bill. It simply means that the constituted local health authorities may be entirely ignored by the federal agency in the set up and conduct of service. The service may be established wholly without regard to local agencies or their wishes. The conflict that this quite definitely assures is bound to result in a serious handicap to all legitimate child health and welfare service. The right to determine the program and to select the local agency to carry it on rests entirely with the Children's Bureau. The power that is thus placed in the Children's Bureau gives this group a strangle hold on all local health agencies so far as child health and welfare services are concerned and permits lay dictation or distortion of medical service. No self respecting health officer in this country will countenance this attempted federal invasion of the service he is sworn to administer. It behooves the medical profession and the public generally to keep close touch with any such threatened malign development.

Again let it be emphasized that the Newton Bill is wrong in principle. The principle of Federal State Aid as a means of financing public health work is an unsound financial policy.

Maternity education should be directed and supervised only by physicians. The problem of reducing maternal and infant death rates is largely a medical problem. Under this bill, whenever it pleases them the Children's Bureau authorities can work entirely under lay dictation and independent of medical control.

If enacted into law the Newton Bill will

amount to a fundamental progress towards the eventual establishment of a permanent lay dictation of the practice of medicine and surgical science.

The intent of the Newton Bill is to do away with the restrictions thrown about the Sheppard-Towner Act and give to a bureau in the Department of Labor that has nothing to do with public health, a free hand, not only in the matter of educating mothers and, presumably, their attending physicians both in matters pertaining to childbirth and in all other health matters as well, for it is not possible to separate the two.

The amount of money the bureau may spend in any state, or whether it has to spend any money in any particular state, and the safeguard at the present time thrown around projects to be put out by the maternity board, are very much reduced by the Newton Bill.

Under the Sheppard-Towner Act any procedure proposed by the Bureau must be approved by the Surgeon General of the United States Public Health Service, the chief of the Children's Bureau and the commissioner of education.

Now, under the Newton Bill this safeguard disappears. This power of veto is nullified. What restriction there is upon the head of the Children's Bureau, the dangerous despot to which previous allusion has been made, lies upon a so-called advisory board—a check rein in name only. This board will have an advisory function but no real authority and with this board the bureau may or may not consult, as it sees fit.

The Chief of the Children's Bureau will be chairman of the board and appoint five of its nine members. The Surgeon General of the United States Public Health Service, the director of extension work of the Department of Agriculture and the Commissioner of Education are the other three members.

Under the Sheppard-Towner Act the federal government has been able to control in some measure health activities in the several states by virtue of appropriations the government has been in a position to make or withhold. Under the Newton Bill, if enacted, the bureau will be in a position to parallel or contravene or cut and slash, in this field, as it may desire.

This proposed act becomes "permanent legislation," if passed. It gives the radical group administering the United States Children's Bu-

reau not only permanent but further autocratic power to usurp the field of the medical profession in one of its most important aspects towards public welfare. It contemplates a flagrant invasion of State rights that must not be tolerated. It is a distinct menace to locally constituted public health authority and threatens endless conflict between a self-centered Washington group of office-holders and local health authorities as well as with the medical profession, as such *it is not in the best interests of public health advancement and medical welfare*. It demands the active opposition of all the people.

This Bill, H. R. 14070, is now resting in the Committee on Interstate and Foreign Commerce and may be called up for hearing at an early date.

As an attempted invasion of State rights, the Newton Bill stands without an equal in the history of American legislation. It opens the way to further legislation which will eventually deprive all the States of their time honored and most cherished privilege of local self-government. It would establish a precedent for federal regulation in every field of local human endeavor.

The Sheppard-Towner Act and the pending bill have, however, some points in common. Neither of them lays down any line of demarcation between the welfare and hygiene of mothers and children, and the welfare or hygiene of the rest of the people, so as to limit operations under the act to a clearly defined field. Neither the Sheppard-Towner Act nor the pending bill contains anything to show why money appropriated for health activities should not be spent under the direction of the United States Public Health Service, which was organized for such work, instead of under a bureau that must duplicate a considerable part of the medical corps already organized and functioning in the Public Health Service, if it is to work effectively.

The average citizen does not know what, under the mask of "Education as to what maternal care should be," this Act intends to do.

The old Sheppard-Towner Act expires by limitation June 30, 1929.

As the protagonists of the old Sheppard-Towner Act concede that this vicious piece of legislation is now practically dead, these propagandists have proceeded to raise it by proffering this ghost that is stronger than its original entity, is known as the Newton Bill (better

designated as the Sheppard-Towner Newton Bill, a bill to provide a Child Welfare Extension Service and for other purposes). This bill has the poignancy and force of a phoenix newly risen from the ashes of public wrath that consumed the Sheppard-Towner Act and its iniquities. Let it be repeated that the Sheppard-Towner Newton Bill aims to perpetuate the principles of the old Sheppard-Towner Act but on a much broader basis. It authorizes an appropriation of \$1,000,000 annually for a Child Extension Service in the Children's Bureau in the Department of Labor.

The difference between the old Sheppard-Towner Act and the new properly designated Sheppard-Towner Newton Bill indicates the extraordinary reaching out for power acquisitiveness of the pending legislation. The Sheppard-Towner Act is self limited; the Newton Bill seeks to establish a permanent policy. The Sheppard-Towner Act recognizes the right of every state to control health activities within its own borders; the pending bill would actually authorize the Children's Bureau to carry on its activities independent of state agencies. The Sheppard-Towner Act defines the method for the distribution among the states of money appropriated under its authority; the Newton Bill is limitless in its interpretation.

Section 4 gives the inference that there is a plan to work with and upon individual children in the United States, except where specifically prohibited by the parent or guardian of an individual child; such a plan can operate only upon the assumption that the child is the property of the state. That is to be denied and should cause alarm to the parents of children and to all American economists. The family is the unit of government and should be closely guarded against inroads of social thought. Whenever such inroads shall have been quietly perfected, then our government will be seen to have abdicated in favor of a communist revolution—not a desirable thing.

The greatest need, legislatively speaking, in the United States today is decentralization of government at Washington. "America is the most law ridden country in the world. In fact, America is forced by law to do and prohibited by law from doing more things than had been prohibited or required in autocratic Europe before the war."

Bureaucracy is always a curse, and centralization a lethal menace under any conditions, where the practice of medicine is concerned, it is fatal.

You should write protesting against Newton bill to the following:

UNITED STATES SENATORS FROM ILLINOIS

Hon. Charles S. Deneen

c/o United States Senate, Washington, D. C.

Hon. Otis F. Glenn

c/o United States Senate, Washington, D. C.

HOUSE OF REPRESENTATIVES FROM ILLINOIS

At Large:

Richard Yates

Henry R. Rathbone

District:

1.
2. Hon. Morton D. Hull
3. Hon. Elliott W. Sproul
4. Hon. Thomas A. Doyle
5. Hon. Adolph J. Sabath
6. Hon. James T. Igoe
7. Hon. M. A. Michaelson
8. Hon. Stanley H. Kunz
9. Hon. Fred A. Britten
10. Hon. Carl L. Chindblom

Address Representatives c/o House of Representatives, Washington, D. C.

Also write a letter to Hon. Edward E. Denison, who is the Representative from Illinois, serving on Interstate and Foreign Commerce, in whose hands the Newton Bill now rests.

MEMBERS OF CONGRESS AFRAID TO VOTE THEIR REAL CONVICTIONS. THE MATERNITY ACT WAS PUT OVER ORIGINALLY BY DE- CEIT AND MISRPERE- SENTATION

Charles A. Selden in *Ladies Home Journal*, April, 1922, in an article entitled, The Most Powerful Lobby in Washington, says:

"After repeated attempts in both branches of congress to let that Sheppard-Towner bill die of neglect or delay or evasion, after the most violent opposition, it was passed in the Senate by a vote of 63 to 7; in the House by 279 to 39. Senator Kenyon (who had charge of the bill) told me that if members could have voted on

that measure secretly in their cloak rooms it would have been killed as emphatically as it was finally passed in the open under the pressure of the joint congressional committee of women."

In short, Senator Kenyon admitted that members were overwhelmingly opposed to this socialist measure, but voted for it because they were led to believe that "millions of women" wanted themselves and their babies bossed by bureaucrats at Washington.

How many times are you counted (without your knowledge, vote or consent) among the mythical millions of women the Washington lobbyists falsely pretend to represent in listing entire memberships of women's clubs (that overlap too) in favor of legislation they have never heard of before being counted in herds as endorsing it.

In other words, the Sheppard-Towner bill was enacted solely because the clever socialists, bureaucrats seeking revolutionary centralized power over American mothers and children, organized a device to misrepresent women before congress as favoring such a dictatorship as is represented by the Children's Bureau in the department of labor in Washington.

CHICAGO & NORTH WESTERN RAILWAY
COMPANY SURGICAL STAFF
MEETING

The surgical staff of the Chicago & North Western Railway Company held a meeting of all members of the Surgical Department at Rapid City, S. D., January 29-30, 1929.

The trip was in charge of Dr. C. W. Hopkins, chief surgeon of the North Western Railroad System.

A special train carrying the surgical staff of the railroad left Chicago on January 27, two days was spent at Rapid City and in the Black Hills, returning to Chicago on February 1.

The purpose of the meeting was to promote closer co-operation of the surgical staff of the Northwestern system and looking toward greater efficiency for the benefit of the patrons and employes of the system.

The first day, January 29, devoted to lectures by several prominent men of the state interested in the development of its mineral and agricultural wealth and the various industries,

there was also interesting medical talks by the members of the staff. The second day, January 30, was devoted to sight-seeing trips by bus, visiting various points in the Black Hills, enabling the visiting doctors to enjoy the unparalleled scenery, including "Sylvan Lake, The Needles, The Game Lodge (the Presidential summer home)," Deadwood Lead and the surrounding country.

THE A. M. A. PORTLAND SESSION
Portland Hotels

The Local Committee of Arrangements for the Portland Session reports that requests for hotel reservations are being received from Fellows in all parts of the country, which indicates a widespread interest and a large prospective attendance at the session. Reservations have already been booked for Fellows in fifteen states. An experienced hotel man has been placed in charge of hotel arrangements, and definite assignments are being made to the various hotels. A printed "Hotel Reservation" form is being used which indicates the name of the hotel and the type of accommodations reserved. One copy of this form is sent to the one requesting a reservation and another copy is sent to the hotel.

The committee asks that those desiring reservations indicate the hotel of their choice, the type of accommodations desired, and, so that duplication may be avoided, the names of the persons who will occupy the rooms. *All requests for reservations should be address to Dr. E. A. Sommer, Electric Building, Portland, Oregon.*

The rates quoted in the following list of Portland hotels and apartment hotels are for one or two persons in each room, unless otherwise indicated:

Portland Hotels		
Name	Without Bath	With Bath
Adler		\$5.00
Angela	\$3.00	5.00
Arthur		5.00
Bellevue	2.00-3.00	
Benson		6.00-10.00
Bridgeport	2.00	3.00
Byron	3.00	5.00
Campbell		5.00
Campbell Court		5.00-6.00
Campbell Hill	3.00	4.00
Caples	4.00	7.00
Carlton		6.00
Carlyle	3.00	4.00
Carroll		3.50
Chamberlain	2.00	3.00
Clifford	2.00	3.00
Clyde		5.00
Commodore		5.00-6.00
Congress		6.00-7.00
Conradine		4.00
Cornelius	3.00	5.00
Eaton		4.00
Gordon		5.00*
Hamilton	2.00	3.00*
Heathman		6.00

Hillcrest	3.00	4.00*
Hoyt	3.00	6.00
Imperial	3.50	4.00-8.00
Lenox	3.00-4.00	5.00
Lorraine		4.00
Mallory		5.00-7.00
Montana		3.00
Morris	3.00	5.00
Multnomah	3.50	4.00-8.00
Navarre	\$3.00-\$6.00	
Nortonia	3.00	5.00
Oregon	4.00	6.00-7.00
Palace		5.00*
Perkins	3.00	5.00
Portland	3.50-4.00	5.50-7.00
Prince of Wales		6.00
Ritz		5.00
Roosevelt		6.00
Rosaria		5.00
Roseland	3.00	5.00
Rowland	3.00	4.00*
Seward	3.00	4.00-5.00
St. Andrews		5.00
St. Francis	3.00	5.00
Sovereign		6.00-7.00
Treves	3.00	
Washington	3.00-4.00	5.00-6.00*
Y. M. C. A.	1.50 Single 2.00 Double	

Portland Apartment Hotels

Admiral (2 room).....	5.00
Cromwell (2 and 3 room).....	5.00-10.00
Doricourt (2 and 3 room).....	4.00- 6.00
Empress	5.00
Lafayette	4.00- 5.00
San Carlos	5.00-10.00
Wheelden Annex (3 room connecting bath).....	6.00
Wheelden Annex	3.00

Railroad Rates to Portland

The Transcontinental Passenger Association has announced that before the time of the Portland Session the regular summer excursion fares, which are lower than the usual convention rates, will be in effect from all points east of and including El Paso, Texas; Albuquerque, New Mexico; Ogden and Salt Lake City, Utah, and the state of Montana.

It has also been announced by the Tariff Publishing Agent at San Francisco that the lowest fares available from points in California and from Reno, Nevada, will be the sixteen day summer excursion fares; from points in Arizona, fares for summer excursion tickets limited to October 31, and from points in Nevada, east of Reno, passengers may purchase one month tickets to Reno and then sixteen day summer tickets to Portland, Oregon.

The Pacific Northwest Convention Bureau has authorized the round trip rate of fare and one-half on the Identification Certificate Plan from points in Idaho, Washington and Oregon (except on the Southern Pacific) and from stations on the Great Northern in British Columbia. A member or Fellow living in these states who expects to attend the annual session at Portland, Oregon, is requested to write the American Medical Association for one of the Identification Certificates, which will entitle him and dependent members of his family to purchase a round trip ticket to Portland at a rate of one and one-half fares. The dates

of sale of these tickets will be from July 4 to July 10, inclusive. The final return limit will be July 16.

The Southern Pacific Railroad Company announces that it will have in effect from all stations on its lines in Oregon round trip fares to Portland which are on a lower basis than on the Identification Certificate Plan outlined.

WORLD'S WAR VETERANS' BILL AND OTHER MEDICAL BILLS IN CONGRESS

H. R. 15573, introduced by Representative Johnson, South Dakota, amends the World War Veterans' Act so as to provide, among other things, that the following additional diseases shall be presumed to have been incurred in service: chronic asthma, chronic sinusitis, chronic epilepsy, chronic heart disease, chronic arthritis, chronic nephritis, diabetes insipidus, diabetes mellitus, pernicious anemia, gastric and duodenal ulcers and leprosy, when a 10 per cent. degree of disability or more develops.—H. R. 15579, introduced by Representative Colton, Utah, authorizes the appropriation of \$150,000 for the construction of a sanatorium and hospital at Ogden, Utah, for the use of veterans of the World War, Spanish American War, Civil War, and all other soldiers, sailors and marines of the United States.—H. R. 13645, providing for the establishment of two United States narcotic farms for the confinement and treatment of persons addicted to the use of habit forming drugs who have been convicted of offenses against the United States, has been ordered favorably reported to the Senate. The bill passed the House, May 21, 1928.—H. R. 15523, introduced by Representative Cramton, Michigan, authorizes representatives of the several states to investigate state sanitary and health regulations and school attendance on Indian reservations, Indian tribal lands, and Indian allotments.—H. R. 15529, introduced by Representative Sirovich, New York, provides for establishing a national institute of health and authorizes the government to accept donations for use in ascertaining the cause, prevention and cure of disease affecting human beings.

Correspondence

LENIENCY THAT IS SHOWN MEDICAL VIOLATORS

To the Editor: The following is a list of medical practice violations that I filed in the Municipal Courts:

Victor Raphael, 2342 Warren Avenue, verdict of guilty on the 10th day of February, 1925, \$100 and costs.

Fred Kabana, May 29, 1925, verdict of guilty, \$500 and costs.

Fred Kabana, June 22, 1925, verdict of guilty, \$100 and costs.

Claude W. Raines, 17 E. 38th Street, June 29, 1926, verdict of guilty, \$100 and costs.

George E. Moore, 1717 W. Madison Street, July 13, 1926, verdict of guilty, \$100 and costs.

H. S. Pak, 1226 W. 14th Street, October 4, 1927, verdict of guilty, bond forfeiture, new *capias* was issued, never heard anything more about this case.

T. J. Jacobs, 4554 Broadway, jury trial, verdict of guilty, penalty \$100 and costs on January 22, 1929.

I am submitting these to you to give you some idea of the cooperation we inspectors get in the Municipal courts of Chicago. I was wondering if you would publish an article on the leniency that is shown medical practice violators in the courts. In all the cases that I have filed, we have been unable to get even the smallest jail sentence, and as you know a fine doesn't mean anything.

I would be pleased to hear from you in regard to the above, and oblige.

Very truly yours,

JOHN POWELL,
Medical Inspector.

DOCTOR CHAPMAN EFFECTIVELY REPRESENTED THE STATE MEDICAL SOCIETY AT THE NEWTON BILL HEARING
THE PAY ROLL BRIGADE REALLY LOOKED DEJECTED AFTER THE HEARING ON THE BILL
THE U. S. PUBLIC HEALTH SERVICE WAS REPRESENTED AT THE HEARING IN OPPOSITION TO THE BILL
THE WOMAN PATRIOT

8 Jackson Place, Northwest,
Washington, D. C.

January 25, 1929.

Dear Doctor Whalen: The Illinois State Medical Society representative, Doctor William D. Chapman, spoke splendidly at the Newton Bill hearings, which ended today.

The attached letter (published below) from the then Acting Secretary of the Treasury (dated August 6, 1928) was presented to the committee yesterday by Doctor Draper of the

U. S. Public Health Service, who also opposed the bill.

From the fact that Parker wrote to him, May 29—the day after the bill was introduced—in Mellon's absence, leads us to believe they tried to get a favorable report from the Treasury Department in Mellon's absence (as they did before on the original bill in 1921) to "rail-road" the bill through at the end of the first session of the 70th Congress. We are trying to obtain from Mr. Mellon's office an expression of *his* approval of the report, personally, although of course it is otherwise official, anyhow.

Chairman Parker, in a private conversation with several opponents after the hearings, seemed to have undergone a complete change of opinion since the day before. There was no elation at all on the part of the great feminist leaders at the end of the hearing. They looked really dejected.

Sincerely yours,

(Signed) J. S. EICHELBERGER,
Editor.

Letters from Treasury Department.

August 6, 1928.

Honorable James S. Parker,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives,
Washington, D. C.

Dear Mr. Chairman:

I have to acknowledge receipt of your letter of May 29, 1928, enclosing Bill H. R. 14070 entitled "A Bill to provide a Child Welfare Extension Service, and for other purposes," with a request for a report thereon.

The purposes of the bill appear to be to authorize annual appropriations and to provide facilities for health and welfare work on behalf of mothers and children, either independently or in cooperation with state and territorial agencies, or through them with county or municipal agencies engaged in such work. Its enactment into law is believed inadvisable for the following reasons:

1. It relates exclusively to women and children notwithstanding the protection of their health is an integral part of the general program of safeguarding the public health.

2. It creates an additional permanent organization with authority to engage in health

work which function should properly devolve upon the existing federal health agency.

3. In health matters, cooperation of the Federal Government with states and local communities should be through the respective health authorities. For such cooperation as may be authorized by law, state and local health authorities should be able to look to the federal health agency; they in turn should not be expected to cooperate with multiple federal organizations in health matters, nor have regulatory activities conducted within their jurisdictions independently of them.

4. There is now authority in law for cooperation by the United States Public Health Service with state and local health authorities for the protection of the public health. This authority should not be duplicated; to do so would tend to cause overlapping and confusion.

I am advised by the Director of the Bureau of the Budget that this report is not in conflict with the financial program of the President.

Very truly yours,

(Signed) HENRY HERRICK BOND,
Acting Secretary of the Treasury.

ANSWER PROMPTLY AND IN DETAIL THE A. M. A. QUESTIONNAIRE

TO THE COUNCIL OF THE ILLINOIS STATE MEDICAL SOCIETY:

At the last meeting of the council, a committee was appointed to confer with Dr. Olin West, general manager of the American Medical Association Journal, relative to the questionnaire sent out by the A. M. A., on the subject of the capital investment of the physician. This committee was also given power to act.

The conference with Dr. West on January 18, all members present, gave us the following information:

The American Medical Association is anxious to get definite information on a number of pertinent subjects, the first of which is the capital investment in medicine. The A. M. A. is sending out approximately 25,000 questionnaires to as many physicians selected at random, and including members of the Illinois State Medical Society. This questionnaire is thorough, and if the physicians receiving it will use care in giving exact data, much valuable information will be gained. This is being sent out by the Amer-

ican Medical Association at its own expense, and is purely a survey of the profession by the profession, and for the profession.

The committee, after carefully considering all the facts available, urges the physicians receiving the questionnaire to give it due consideration, and fill it out carefully as requested.

The Committee believes that this action by the American Medical Association is necessary at this time in order to combat the propaganda being circulated on the cost of medical care. We believe the American Medical Association should be congratulated on its interest in this movement in the interests of the medical profession.

Respectfully submitted,
DR. H. M. CAMP,
DR. CLEAVES BENNETT,
DR. R. R. FERGUSON, Chairman.

THE MUCH TALKED OF SHORTAGE OF DOCTORS DOES NOT EXIST IN NEW YORK STATE.

Albany, N. Y., January 10, 1929.

To The Editor: The Executive Officer of the New York State Medical Society has just completed a survey which covers the distribution of the doctors in the State of New York. He has gone back into the records for fifty years and has data which proves conclusively that the much talked of shortage of doctors does not exist in this state.

I feel that the news is so important that if it has not been drawn to your attention you might like to have it for your Journal.

ARTHUR J. BEDELL, M. D.

THE OLD ONES ARE THE BEST

A clergyman, anxious to introduce some new hymn-books, directed the clerk to give out a notice in church in regard to them immediately after the sermon.

The clerk, however, had a notice of his own to give with reference to the baptism of infants. Accordingly, at the close of the sermon he announced, "All those who have children they wish baptised, please send in their names at once." The clergyman, who was deaf, supposing that the clerk was giving out the hymn-book notice, immediately arose and said: "And I want to say for the benefit of those who haven't any, that they may be obtained from me any day between three and four o'clock, the ordinary little ones at fifteen cents, and the special ones with red backs at twenty-five cents each."

Original Articles

ADDRESS OF WELCOME*

ISAAC A. ABT, M. D.
President Chicago Medical Society

CHICAGO

Mr. President, Members of the Illinois State Medical Society and Guests: On behalf of the Chicago Medical Society I have the great honor to welcome the Illinois State Medical Society to this city for its seventy-eighth annual meeting. The Chicago Medical Society desires to pay homage to the State organization of which it is one of the component branches. We would be glad to guide the visitors through the city and show them the sights, but I think this is altogether unnecessary. Most of the members from other parts of the state have worked here in medicine at one time or another. Many received their medical degrees here. Others worked in hospitals and served their internships here, so that it is quite unnecessary to furnish you guides to see the sights. We are frequently honored by your visits to the city when you desire to be observers at our hospitals and clinics.

Journeying from one community to another is relatively easy nowadays with modern means of transportation, so that every physician may come to distant places occasionally. We have only to recall in speaking of annihilating distance that someone made the trip from New York to Paris in a little more than thirty-three hours.

It is appropriate that we should point out some of the natural advantages of the state and city in which we live. This great plain which we inhabit is unexcelled as a fruitful and productive agricultural area. We are told that within a night's ride of Chicago there are represented 50,000,000 people. Chicago through its natural resources, waterways and railroads offers untold possibilities for material and intellectual growth. There are those who believe that this city has in it the potentialities of becoming the largest and most powerful municipality in the world, a city whose magnitude has never been dreamt of and the like of which has never occurred in history.

The Cook County Medical Society, the official

medical organization for the vast area included in this County, bids you welcome. They wish to assure you of their continued and active interest in the Illinois State Medical Society. Chicago or the Cook County Medical Society is interested first and foremost in the science and art of medicine. An ideal to be striven for by a medical organization such as this is to stimulate its membership to the attainment of the most accurate knowledge and the highest skill in the theory and practice of medicine. At the meetings of the Chicago Medical Society I have been enabled during the past year to be an eye witness to the proceedings and the scientific programs. I may assure you that a very earnest attempt has been made to furnish not only the most recent knowledge concerning investigation and research, which is very important, but also to bring to our membership the best methods of practice, the most efficient plan of treatment, the most recent discoveries which have practical application for the care and treatment of the sick. The local medical society should endeavor to clarify everyday problems and to popularize recent discoveries which have a definite value. Men in active practice who are absorbed by the onerous duties of their profession need help of this kind more than abstract information which is of little help in determining the nature of disease or in the treatment of the sick.

The Chicago Medical Society, in so far as it can, attempts to interest itself in the social and economic relationships of its members. Times have changed. The conditions of medical practice are undergoing a rapid evolution. It is not easy to mold medical thought and opinion so it may be adjusted to these rapidly changing conditions. In order to bring about these adjustments, a thoughtful consideration of the problems is required over an extended period of time. Therefore, a devoted and intelligent leadership is an essential factor in the solution of many of these problems. In all our practical and social deliberations we are not unmindful of our duty to the community and more particularly our professional relationship to the sick. The trials and tribulations which confront us at the present moment are not peculiar to our time or to our section or to our country. They have occurred at all times and in all places. They are practical medical problems that require solution and variation with the

*Address at Seventy-eighth Annual Meeting of Illinois State Medical Society at Chicago, May 8, 1928.

changing conditions and the changing times. It remains for us only to keep pace with the progress of our profession and to render devoted and efficient service to our patients and our community.

For the purpose of increasing our knowledge and emphasizing these ideals we meet in annual session, such as we are now attending. The Chicago Medical Society hopes that you will enjoy to the fullest your visit here. We trust you will take advantage of the opportunity to visit our hospitals, clinics, universities, and public institutions. We want to give you all a hearty handshake. We want you all to have a profitable and interesting visit with us and we hope you will come soon again.

ADDRESS*

T. C. POWELL, Esq.

President Chicago and Eastern Illinois Railway Company

CHICAGO

Mr. President and Members of the Illinois State Medical Society:

It gives me great pleasure to welcome you to Chicago on behalf of the Chicago Association of Commerce.

I am a great believer in these gatherings of men, who, through practicing the same profession, come from all parts of the country to meet and discuss problems and theories. Many a thought that would not be expressed in writing is brought to the surface and discussed personally at such gatherings as this, to the mutual benefit of the originator and of those who either attack it or agree with it.

Dr. Wm. Osler (afterwards "Sir"): Most of you will recall the gathering at which Dr. Wm. Osler propounded his theory of the "Fixed Period". I was much younger then and could regard calmly his proposal that men at sixty should be retired on double pay! I have read his life, recently published, and I do not think the printed account is exactly descriptive of what happened.

Fixed Period: This account does not indicate that the speaker was interrupted; but a friend of mine, who was present, told me that when Mr. Osler had reached the point in his dis-

course in which he said that a man's real constructive work had been or should be concluded by the time he was sixty—some one called out, "and what should be done with him then?" Thereupon, Dr. Osler, in the same jocular vein in which he had been talking, answered, "Oh, he ought to be chloroformed." As a matter of fact, he himself was in the full swing of a number of activities up to his death at sixty-nine.

His theory immediately gave rise to many controversies, and we cannot ignore the fact that many men have achieved greatness before reaching fifty or even forty years of age.

Examples of Early Success: Gustavus Adolphus, the great warrior king of Sweden, who inherited at his accession three wars and was successful in all, died in battle at thirty-eight.

Lord Clive, born in 1725, by 1765 had completed the founding of the Empire of British India, which began with the siege of Arnot when Clive was only twenty-seven. He killed himself at forty-nine.

Alexander Hamilton, born in 1757, was a member of the Continental Congress in 1782, Secretary of the Treasury from 1789 to 1795, and was killed in a duel in 1804.

William the Conqueror, born in 1027 or 1028, was crowned King of England in 1066.

Lord Byron, born in 1788, died in 1824 in his thirty-seventh year.

Richelieu was Secretary of State of France at thirty-one.

Genghis Kahn was Head of the Mongol nation at forty-four.

Edward Jenner, born in 1749, began to practice in 1773, and performed his first experiment in vaccination against smallpox in 1796 when he was forty-seven.

"Coningsby": Curiously enough, Disraeli, who did not become Prime Minister of England until he was sixty-four, makes one of the characters in fiction exclaim,—*"The History of Heroes is the History of Youth."*

Prolongation of Life: It has been said,—(De Larbas) *"Who well lives, long lives; for this age of ours should not be numbered by years, days and hours."*

For me to say that the average life of mankind has been prolonged is merely, on my part, repeating a record that appears in all the statistics, but it is for you to say how this prolonga-

*Address at Meeting of Illinois State Medical Society on behalf of Chicago Association of Commerce, May 8, 1928.

tion of life has been brought about and how it should be continued.

It is for you, in a particular kind of personal profession, to tell us whether this prolongation of life is really benefiting mankind as a whole.

I have seen a long-lived individual with a stunted intellect bring to a premature grave his father and mother, and destroy for many years any chance of comfort or peace of mind on the part of the other members of his family.

I was taught in my history lessons that it was the custom of the Greeks to eliminate, at an early age, the physically unfit. I have read, in later years, that the American Indian, before he was contaminated by the whites, represented physically a fine standard of bodily perfection, and could endure, without complaining, heat and cold, starvation and long journeys, and that the only ailment of which he complained was an attack of toothache.

Zulu Nation: I think it was Rider Haggard who declared that the race of Zulus had maintained itself in physical perfection by rigid habits, so that taken as a body of people they have excelled physically any other race or nation of history or of the present time.

A study of the reports made by different travelers to comparatively unknown countries and islands has revealed the successive conclusion that contact with the white race has been physically disastrous to those we term the barbarian nations.

Malaria: It is only recently that I have seen the counter statement that some of the modern diseases of America, such as malaria, are the result of the slave trade of the previous centuries. This seems to me to be a belated "come-back".

Modern Scheme of Life Reduces Mentality: But modern sentimentality does not permit sufficiently rigorous methods and so we are trying to absorb every kind of physical and mental disability, and thus we are gradually reducing the level of intelligence and morality. Hence our growing army of juvenile criminals.

Even sport is degraded; and no game can proceed without umpires and guards, and the most exact surveillance of each player. The moral fiber is frequently of so low an order that if dishonesty can be "put over" it is regarded as "smart" and the result a success.

Accidents in Mechanized Industry: Industry

is becoming mechanized so thoroughly that a machine is lauded because it is "foolproof"! But the personal injuries continue and even increase.—The "fools" have caught up with the alleged "foolproof" machines and the result is some kind of accident.

Tests carefully made develop that the ordinary workman and mechanic cannot protect himself against himself. His mental fiber is readily exhausted to a point which dulls his perception, and mass production of goods, using almost human machinery, results in an increasing number of accidents to the actual human because he is not able to be alert and perhaps does not try. This is another problem for you to solve.

"Morons": A new word has come into our vocabulary—"moron"—so new that it is not in the original Century Dictionary, but so well accepted that even the policemen, children and criminals are classified as "morons" or "non-morons."

What does it mean?—

The Standard Dictionary says the definition is;—

"A person whose mental capacity has been arrested during development and who represents mentally the condition of a child twelve years of age."

My suspicion is that it means much more than that.

For one thing, the comparison with a child twelve years of age is a slander on a good many children of less than twelve years whom I know and whose minds are so alert that nothing escapes them and whose moral standards and sense of justice and proportion are high.

I think you medical men will agree that the "Standard" has given only a partial definition, and if we accept it as complete we shall be excusing crime and depravity and a generally low moral sense.

Remember the prayer of Socrates, —

"Beloved Pan, and all ye deities that haunt this place, give me inward beauty of soul, and may the outward and the inward man be at one."

The word "moron" is new, but the condition and its cause are not—for two thousand years ago it was said;—

"There is, in fact such corruption engendered in man by bad habits, that the sparks, as it were, of virtue furnished by nature are extin-

guished, and vices of an opposite kind arise around and become strengthened."

Upbuilding of Character: It seems to me that one of the problems before you is not merely the prolongation of life; but the upbuilding of the character of those whom you help to bring into the world.

"The diseases of the mind are more destructive and in greater number than those of the body." (Cicero).

Slums and Alleys: Hamlet, in his soliloquy, complains of,—

"The slings and arrows of outrageous fortune"—but if I might paraphrase Shakespeare, I would say that one cause of diseased minds and bodies are,—

"The slums and alleys of our modern cities."

"The Schoolmaster Is Abroad": But "the schoolmaster is abroad", and every newspaper throughout the country conducts with more or less assurance a medical column. Even one of our Senators forsakes, for the time being, the halls of Congress to write a column daily in answer to the many inquiries that reach him from the readers of the paper. Some times I wonder whether the questions are always genuine inquiries, or whether, to fill up a prescribed space, imaginary questions are propounded and answered by the same person.

Liver: I was attracted the other day by an item in one of these medical columns referring to "liver". At one time it was regarded as very plebeian to eat liver, although personally I have always enjoyed it, but it now appears that not many years ago some physician or chemist discovered that "liver", as an article of diet, was a corrective of "pernicious anemia" and with the immediate result that there was a tremendous demand for liver, so that the price has gone up to a point where only the well-to-do can patronize this particular organ of some of our domestic animals.

Influence on Price of Food: This led me to ponder on the influence that the medical profession may have on the price of some of the articles of diet.

Through the medium of the press, members of that profession who contribute to these special columns have the power to raise or lower the price of many food articles. The result of the public statement that an excessive amount of

meat is injurious to some of the human organs had an immediate effect upon the average amount of meat consumed by the population of the country. On the other hand, following the public statement that spinach contained so much iron and that fruit, such as oranges, and that vegetables, such as lettuce, contained so many vitamins, the demand for these articles increased to the undoing of the other items of food.

I remember a statement, for instance, some what as follows:

"The most tragical thing in life is to see a fat man eating a potato."

Wheat: About four years ago, I was in Chicago attending a wheat conference, the purpose of the meeting being to persuade the public to eat wheat bread in order to help the farmer. Although an invited guest, I do not know who was responsible for the very liberal luncheon, but sitting at a table of eight people, of whom four were attractive looking ladies, I observed that the generous supply of rolls was not appreciated, and when I suggested to them that it was their duty to help the farmer and to eat more bread, each one laughingly said that she could not afford to put on any more weight. So you see, the farmer was not at all helped, except by the small contribution that the four *men* at the same table were able to make in the way of consuming some of the rolls.

I believe it is a fact that the average consumption of wheat per capita in this country has fallen off, and I haven't the slightest doubt that it is the result of the belief on the part of a number of people that bread makes them too fat. I think it was Mrs. Rorer who once said:

"Instead of bread being the staff of 'life' it is the staff of 'death.'"

but I don't know exactly what she meant.

Influence on Farmers' Profits: So, when you read Senator Capper's *Farm Magazine* or Senator Shipstead's speeches about the American farmer's condition, please don't overlook your own responsibilities.

Perhaps, after all, it is not the railroads but the doctors who are reducing the farmers' profit on wheat and hogs; just as it was the prohibitionists who ruined his market on corn, rye and barley!

Beri-Beri and Rice: When I saw, in one of these medical columns, an account of the ef-

fect of a diet of polished rice and how quickly the trouble could be cured by adding the powder (that is to say, the gluten or nitrogenous matter) my mind recalled dimly some incident of one of the English wars in India. At first, I could not trace the exact connection between "Beriberi" and war; but I happened on it in reading Macaulay's life of Clive, in which the following appears in describing the siege of the citadel in the city of Arcot, India.

"The sepoys came to Clive, not to complain of their scanty fare, but to propose that all the grain should be given to the Europeans, who required more nourishment than the natives of Asia. The thin gruel, they said, which was strained away from the rice would suffice for themselves."

This was undoubtedly an act of devotion, but one which benefited the sepoys, as we now know after a lapse of over one hundred and seventy-five years.

Verb "To Help": My personal contributions to the financial betterment of any one of your members have been very slight, but I live in the future more than in the past, and not knowing when or in what emergency I may have to appeal to you, I regard the members of the medical profession as an anchor to windward. Or, as some one has better said,

"A physician is . . . a satisfaction to the mind." (Petronius Arbiter, A. D. 50).

In my opinion, nothing is so comforting as the ability, in times of distress, to "call in the doctor", and I know that my own mother, who had eight children and who lived to the good old age of eighty-six, received the greatest inspiration and assistance through her faith in her family physician.

I quote with strong approval, therefore, that, "After the verb 'To Love'—'To Help' is the most beautiful verb in the world."

Chemistry: It is true that Emerson called you "materialists" and said that your idea of spirit is a "chemical agent," but I cannot agree with this definition or criticism.

If we needed nothing but a chemist, we should not appeal to the medical profession but to such men as attended the meeting of the American Chemical Society in St. Louis last month. If only chemistry is necessary, there surely has been sufficient development in that branch of

science to keep us in perfect health all the days of our life to make us live forever.

There is something above chemistry in our makeup. Ootherwise, how can it be explained that some people can go through the most distressing ailments and operations and finally arise from a sick-bed in reasonably good condition, while other apparently healthy people whose chemical makeup is one hundred per cent, cannot withstand shocks much less severe.

Perhaps the recipe for our physical happiness and comfort is expressed as well in the following paragraph from the classics as if it had been written yesterday:

"Good health is to be secured by an acquaintance with our constitution, and by observing what things benefit or injure us; by temperance in living, which tends to preserve the body; by refraining from sensuality; in short, by employing the skill of those who have devoted themselves to the study of the human body." (Cicero).

But your influence does not stop at food and medicine—you are arbiters of fashions.

Women's Dress: In the way of dress, you condemned the long trailing skirts of the early Nineties, and now what have you done? You have persuaded the women to so shorten their garments that the manufacturers of cotton and silk dress goods are complaining that the dress of the average woman is not heavy enough to wad a gun, and now some doctor has undertaken to make more trouble for the manufacturers of dress goods and of cotton hose, and to confer benefit upon the manufacturer of silk stockings, by stating that the shorter skirts permit the sun to beam upon the nether limbs of womankind and to make them more shapely. I cannot say that I "hate to think" what may come of it, because I am certainly interested in how far the remark will be taken seriously.

Croup: As a child, I was a victim of croup, and now I am told that croup is rarely heard of, and that the name never had a foundation for its use. I am willing to accept the statement that croup is gradually disappearing, but I will not agree that the name never had an excuse for its application. It was a good many years ago that I was subjected to this trouble, but I still recall the agony of waking up in the morning feeling the irritation in my throat,

which could only be relieved by a violent explosion.

Primitive language was made of words which imitated natural sounds, such as "splash," "buzz," etc., and the word "croup" is a good reproduction of the cough.

No one seems to take any credit for its disappearance from the list of maladies, but perhaps the remnants have been given some other name.

Walker's Dictionary: I happen to be the possessor of a family heirloom in the substance of a dictionary by the English lexicographer, John Walker. The book was published in 1811, and that period must have been the dividing line between irregular pronunciation on the one hand and a more standard pronunciation of the period immediately following. For instance, of the word "b-o-s-o-m" he gives four authorized and common pronunciations ranging from "boosom" to "buzzum", and we now have adopted the intermediate.

However, in glancing through the volume, I found some other changes, such as: Phthisick pronounced tizzik; and the same word spelled differently: Phthisis pronounced thisis, the definition in both cases being "consumption," which I believe you now call "tuberculosis".

Another word of that day was "vapours". This seems to have been a very adaptable word to be applied to a great many mysterious ailments, but the definition given in Walker's dictionary is:

"Vapour—Diseases caused by flatulence, or by diseased nerves; melancholy; spleen."

"*Epizooty*": But Walker did not know of "Epizooty", which I note may descend on Chicago if we are not careful.

In my young days it used to be "epizootic" and meant something to do with animals—like "pink-eye", but as the horse is disappearing probably some newspaper contributor doesn't like to waste a "good mouth-filling word."

Drug Store and Druggists: By the way, one benefit of going back a little is to find out what a "druggist" really started out to be! Walker says he was "one who sells physical drugs."

Old Names: Other definitions are: A "chymist(chemist)" was a professor of "chymistry"; "Chymistry" was limited to "The art or process by which the different substances found in mixt bodies are separated from each other by means of fire." "Apothecary"—"A man whose employ-

ment is to keep medicines for sale." "Surgeon"—"One who cures by manual operations." "Physician"—"One who professes the art of healing."

"*Oozelum*": Not long ago I heard of a chemist who, after a long drawn out experiment, in the course of which he had tried to instruct some students, had finally produced something which seemed to be so indefinite as to lack a name, and when he was urged to christen it, he said he thought it must be some species of "oozelum oxite". That is another word that I command to your attention. "Vapours", "epizootic" and "oozelum" can cover a multitude of ailments.

Long-Tailed Words: While I believe the present younger generation is not only better informed than the preceding generations, and much smarter and quicker to catch on to new ideas, please have mercy on the rest of us in your appellation of new diseases or the old ones brought to life again.

"Don't confound the language of the Nation with long-tailed words in 'osity' and 'ation'."

With this final suggestion (which, after reading the program of subjects for this meeting, I fear is too late), I conclude my interruption of your deliberations, and wishing you a happy time again bid you welcome to Chicago.

AN ADVISORY MEDICAL BOARD OF
HEALTH AS AN ADJUNCT TO A
HEALTH DEPARTMENT
IN A SMALLER
CITY*

FRANK S. NEEDHAM, M. D.

Commissioner of Health.

OAK PARK, ILLINOIS

About twelve years ago the physicians of Oak Park organized a Club whose function was to promote co-operation, harmony and a more friendly, fraternal relationship among the physicians residing in that community. Physicians in good medical standing were invited to become members, and upon application and a favorable vote of the Club, were elected to membership. That organization has been kept intact, has made a healthy growth and been instrumental in

*Read before the Section on Public Health and Hygiene, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

many ways for the best interests of the community, and is still functioning with about 100 members at the present time.

At the time of the organization of the Physicians' Club, the Oak Park Health Department was limping along with a Board of Health composed of three local physicians who performed their work gratuitously. That Board of Health, while it functioned as well as the average, did not get the co-operation on the part of the physicians and the community as a whole, necessary for the best interests of the health and welfare of the community.

One year later a full-time, salaried non-medical Commissioner of Health was appointed. The Health Department became organized; statistical records pertaining to morbidity and mortality were inaugurated; examinations of milk, water and food supplies were made, and sanitary inspection of stores, restaurants, etc., were a part of the regular routine. All of this was of material improvement and progressed satisfactorily.

Problems pertaining to contagious diseases became involved and on account of the Commissioner of Health not being versed in medical knowledge, misunderstanding developed and a lack of co-operation between the physicians and the Department of Health resulted, which created a demand for medical advice in the Health Department. As a result, the physicians impressed on the President of the Village the necessity of appointing a Medical Advisory Board, composed of six physicians residing in Oak Park, whose duty was to act in an advisory capacity with the Commissioner of Health for the prevention and control of communicable diseases, and other matters pertaining to the health and welfare of the community.

About one year later the Commissioner resigned to answer the call of the Government and enlisted in the service. The vacancy thus created was filled in January, 1918, by the appointment of the present incumbent, a medical man, who has held that position continuously through several changes of administration. The Advisory Medical Board has been of inestimable value in giving advice, support and its influence at various times.

The members of this Advisory Board, being physicians residing in the different sections of the town, known personally throughout the

neighborhood and familiar with the prevalence of any existing contagion, have had a far-reaching effect in obtaining the willing support and co-operation of the community in matters pertaining to its health.

A willingness and desire on the part of parents to report contagious diseases in their own homes has supplanted the opposition to placarding and quarantining, which at one time was so generally prevalent, until now it practically no longer exists. In many cases where a physician is not in attendance, the parents promptly report to the Health Department the presence of a suspected communicable disease in their home.

When a business man receives a suggestion or an order from the Health Department to make certain provisions or changes that do not meet with his immediate approval, the first place he goes for sympathy is to his family physician. If, however, instead of receiving sympathy, he gets good honest advice to comply with the request because it is right and for the ultimate best interests of his business, the problem is solved without friction.

Nearly forty physicians, during the past ten years, have served on this Board, and they are more or less familiar with the regulations. Other physicians who have not served have readily given their support to the administration, and as the years go on it may be their privilege and duty to assist in carrying on this work. Our sanitary problems in food handling establishments now need only the recommendations on the part of the Health Department and the necessary conformities are promptly arranged.

Our first big problem in the control of disease occurred with the "Flu" epidemic in the Autumn of 1918. At that time the whole world was astir and the disease was taking a terrific toll of human life. When it became necessary to maintain a rigid quarantine, regulations were adopted preventing public gatherings of all kinds, closing theaters, schools and churches, quarantining all hospitals and prohibiting public funerals. Then was the time when the Board was of great value to the Department of Health. They stood as a unit, without any equivocation; the regulations adopted were applied to all and without distinction. I found this Board taking with me the brunt of complaints and criticisms from churches and or-

ganizations that felt that they should be exempted. These men emphasized throughout the community the necessity of such regulations. In addition to those who were members of the Board, I had also the fullest co-operation and support of the ex-members and other physicians of the community, many of whom have since served as members of this Board. The "Flu" epidemic passed and the schools opened, under medical and nursing supervision. Our mortality was comparatively low; from a population of 40,000 we had about 1,400 cases of influenza reported. Thirty-seven deaths occurred from influenza and seventy from all types of pneumonia during the same period.

One year later this community was threatened with an outbreak of smallpox. The Board adopted the standard regulations pertaining to the control and prevention of smallpox. Of course we had the usual opposition from the conscientious objectors—the various cults—the so-called Christian Scientists and those who are opposed to their loss of personal liberties. The regulations were enforced and in several instances children were excluded from school, which action brought the usual suit for damages. This case, after many continuances, was decided in favor of the defendants.

After the decision in the case was rendered against Dr. John Dill Robertson, in which it was decided the City Council had no authority to delegate to a Health Officer the powers and duties which the Legislature said it might delegate to a Board of Health, our Village Council, on May 17, 1922, passed the following amended ordinance pertaining to the creation of a Health Department—its powers and regulations:

Creation of Health Department and Appointment: Commissioner of Health and Appointment. There is hereby created a Board of Health to consist of the Commissioner of Health and six other members to be selected from among the physicians of the Village, to be appointed by the President by and with the advice and consent of the Village Board at the same time and in the same manner as the other officers of the said Village are appointed; said Commissioner of Health shall be subject to the provisions of all Ordinances relating to such appointment and shall give bond in the sum of not less than One Thousand Dollars (\$1,000.00), conditioned for the faithful discharge of the duties of the office. The Commissioner of Health shall be the executive officer of the said Department.

Power—Rules and Regulations—Penalty for Vio-

lation. Said Board of Health may enact such rules and regulations as it may deem necessary and advisable to promote and preserve the health and sanitary conditions of the Village of Oak Park not inconsistent with the Laws of the State and the Ordinances of the said Village, and to alter, amend or annul such rules and regulations. Such rules and regulations, when adopted by a majority of the Board and published for a period of ten days in an official newspaper of the said Village, shall be deemed as an interpretation of the Health laws of the State or Ordinances of the Village of Oak Park, and violations of the same shall be subject to the same penalty as the penalty prescribed for violations of the Laws or Ordinances upon which such rules and regulations of such Health Department are based or founded.

Duty of the Commissioner of Health. It shall be the duty of the Commissioner of Health to enforce all the Laws of the State and Ordinances of the Village of Oak Park, and all rules and regulations of the Health Department in relation to the sanitary condition of the Village, and to cause all nuisances to be abated with all reasonable promptness.

Power to Make Rules and Regulations in Case of Epidemics or Emergencies. In case of contagious or epidemic disease or diseases, or of danger from anticipated or impending contagious or epidemic diseases, or in case the sanitary condition of the Village shall be of such a character as to warrant it, it shall be the duty of the Commissioner of Health and the Health Department to make such rules and regulations, and to take such measures, and to do and order to be done, and cause to be done, such acts for the preservation of the public health (though not herein or elsewhere, or otherwise, authorized) as they may in good faith believe the public safety and health demand, and all such rules and regulations so declared by the Commissioner of Health or the Health Department to be emergency rules and regulations shall, as soon as may be after the promulgation of the same, be formally reported to the said Health Department for approval.

Power to Enforce Regulations of Vaccination. The said Health Department may take such measures as they may from time to time deem necessary to prevent the spread of smallpox or such pestilential diseases, by issuing an order requiring all persons in said Village, or any part thereof, to be vaccinated within such time or times as the Health Department may prescribe or direct, or to conform to such other sanitary regulations as they may establish, and in accordance with the provisions of this Chapter.

All Ordinances, or parts of Ordinances in conflict herewith are hereby repealed.

This Ordinance shall be in full force and effect from and after its passage, approval and due publication.

Regular meetings of the Board are held on the first Monday of each month. A report of the month's work is made, discussed and new problems are considered. Special meetings may be called at any time whenever it is deemed necessary for emergency matters.

Recently, on account of the increasing prevalence of rabies, a veterinarian was appointed to counsel, advise and render such service to the Board of Health as might be desired.

With a Medical Board of Health:

The responsibility for the health of a community is placed with the medical profession, where it belongs.

A better co-operation between the Health Department and the physicians is obtained.

When regulations are made by a group of physicians familiar with the details of existing conditions, that community is more willing to accept and co-operate than if such regulations were made by one individual.

A Medical Board of Health, so operated, will help to keep the Health Department out of politics.

DISCUSSION

Dr. J. W. Van Derslice, Oak Park, Illinois: It seems to me that this would be a very valuable paper for the health officers of the smaller cities of the state. Throughout all the conversation between health departments and the physicians there is always a desire upon the physician and a desire upon the health officer for the two to work in harmony.

It seems to me that in Oak Park there is worked out a basis which should give a very easy part for the health department of any community of that size. Oak Park is the largest village in the world and has about 70,000 people, so you see it is fairly comparable to many of the small cities of the state.

The health officer of the village of Oak Park is not a whole time man, he is a practitioner of medicine and a part time health officer. That, of course, is a factor in a great many places to stir up more or less animosity. But in your smaller city of course, you would have your county medical society. I am not familiar with the facts as to how many of the smaller cities have a city medical society, but where there is a city medical society the relationship that has been established now for over fifteen years in Oak Park, giving it a trial of sufficient length to see whether it is workable or not, should be tried.

In Oak Park we do not use a branch of the Chicago Medical Society because the Oak Park branch of the Chicago Medical Society takes in everything from Cicero Avenue to the County line.

That takes in several villages on the West and a large part of what used to be called Austin, so we have in Oak Park what is called the Oak Park Physicians' Club. That is just a little social gathering of doctors to put on, not scientific subjects, but just lectures and entertainments once a month for about six or eight months a year.

That embraces practically all the practitioners of Oak Park, and they suggest as the paper said, to the president, names from which he appoints them. I have never been on that board, but it is my idea that we to a very large extent pass that committee around so that in the fifteen years I suppose there have been thirty or forty of the practitioners of the community on this board. Our period of office in the village is two years so you see in the period of ten to twelve years a very large proportion of the practitioners of your community have served on this health board and are cognizant of the point of view of the health officer.

That is the big point in my mind between the doctor and the health officer. One has the idea entirely of preventive medicine and public health, and the physician is an individualist. He is thinking of that one patient and not of the community, but if he gets the other slant, I think we have proven beyond a doubt he will work with the health officer.

At our meetings of this Physicians Club almost every month the health officer of the village, or one of his committee, will be called upon to see if there has anything developed in the village that is of interest to the Physicians' Club,—if there is a change in quarantine regulations, or anything of that sort, the Oak Park Physicians' Club is acquainted with that in advance. Every doctor there knows about it so if his patients call up and ask any questions he immediately supports the department. He does not say, "Oh, I don't know anything about that," or "Oh, they have gone crazy over there in the city hall." No, he says, "Yes, that is a new regulation, and I think it is the right thing to do."

If we go into compulsory vaccination now every doctor in Oak Park stands with his back against the wall ready to make the fight no matter how far it goes. I think we can say every doctor. I am very sure you could absolutely rely on ninety-five per cent. In other words, you have the organization spirit which includes your department of health. Or, in other words, your medical society has an idea away back in its head some place that it is running the department of health, that is, it is responsible to the community for the public welfare of that community. It believes that if it speaks, the authorities of that community will listen, and I can see, from my acquaintance in this section that this is a talking point that I believe can be sold to a good many of the smaller cities in the state of Illinois, and, just as a practitioner, I can recommend, because of the harmony that exists constantly

between our health department and our local physicians.

Dr. William A. Howe, New York: Dr. Needham's presentation of his organization is one of the best things I have heard for sometime. One question occurs to me: Would not such a system be just as applicable to larger communities as to those with 70,000 population? Inasmuch as it has demonstrated its effectiveness in a community of 70,000 why should it not be equally as efficient in a population of 500,000?

Dr. I. D. Rawlings, Springfield: This is such a splendid paper I dislike to see it go undiscussed. It seems to me in Oak Park they have struck on an ideal way for the larger communities to solve their local health problem by getting the cooperation of the doctors.

Unfortunately, in our down state communities we do not have many cities as large as Oak Park—70,000. There are in Illinois only fifteen cities, outside of Chicago, having 30,000 or more people, all of which were surveyed some time ago by the state health department.

In the smaller communities we often have only one doctor in the community; sometimes there are two or three but not infrequently these physicians are not on speaking terms. It would be difficult there to work out harmony. That is the reason we think there should be a county unit in these rural districts where they do not have any large cities. If you have a county unit and rely on the county medical society to pick the health officer for a county board of health, the board of health functions county wide, and you would have harmony and much the same solution there that Oak Park has in that community.

Ohio, for example, has used the county unit in forty-eight of the eighty-six counties in Ohio. We heard here from Dr. Welch and Dr. Bishop yesterday of the many county units in their states, and they think the county is the proper unit down in Alabama and Tennessee. I think if all physicians understood this county unit problem they would be for it, because, as some of you know, of the 2700 health jurisdictions in Illinois, only about 300 of these are manned by physicians; all others are lay health officers who do not know their problems. They haven't enough doctors in the small city. If they did want to appoint a board of health made up of doctors there wouldn't be enough doctors in those communities to serve on the board because often there is only one doctor. Physicians are becoming scarcer and scarcer in the smaller communities. The doctors are naturally migrating from the smaller towns now that we have good hard roads, and easy access to the hospital in larger towns and cities.

Dr. Frank S. Needham: I haven't very much more to say. When I accepted the appointment as Health Commissioner, I accepted it without any strings on it at all. There was no politics or any-

thing else that entered into it. I knew the Health Department was not all roses and I knew there was going to be quite a little to do, so I went in there with the idea that I had no obligations to anybody and tried to run the Department right, with the idea of co-operating with the physicians. I, at least, make them feel they are running it.

To start with, it was sort of a field of cockle burrs and thistles but it soon ironed out and we had very little fighting to do. The so-called Christian Scientists will come and eat out of our hands now, so to speak. I would say it is a pretty nice organization.

So far as its working out in a larger city is concerned, I can easily see that the City of Chicago would have a difficult problem in that way. In Oak Park we have only about five square miles of territory but in Chicago they have a great many more and it would be difficult to cover them effectively, but we can handle it, I think, with twice or three times the number of population we now have. It is working very satisfactorily at present.

REACTIONS RESULTING FROM INTRANASAL SURGERY*

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and

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CHICAGO

Regardless of the skill of the surgeon and the utmost care exercised in surgical technic, reactions following intranasal operations frequently occur. The severe complications incident to excision of the ethmoids, when this procedure is definitely indicated, are sometimes unavoidable because of infection present in the operative field, and because of the unusual anatomic variations which may be present. The same might be said when partial or complete turbinectomy has to be performed for some urgent indication. When, however, submucous resection of the nasal septum is the operation of choice, complications and severe reactions, although known to occur in spite of the most rigid prophylactic measures, can be greatly minimized by close attention to certain factors which are entailed in a systematic study of this problem.

The reactions which are observed may be classified as 1. immediate, and 2. late. The late reactions may be serious complications involving the brain structures, occasionally causing

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fatal termination. Milder complications consist of infections, abscesses, cartilage sloughs, septum hypertrophies, lax membranes, perforations of the septum, dry catarrh, synechiae and adhesions, etc. Some of these can be corrected by adequate treatment with an end result that is usually satisfactory. Others, again, are not so favorably influenced and continue to prove annoying both to the patient and to the rhinologist.

The immediate reactions, with which this paper is chiefly concerned, are of consequence mainly because of their disagreeable symptoms, and because they affect the economic aspect in that the convalescence of the patient is considerably longer than it should be. The more important symptoms of these immediate reactions due to various causes are: 1. headache, 2. obstructed breathing, 3. infection (occasionally due to Vincents' spirillum), 4. hematoma, 5. deposit of organized exudates on the nasal membranes, and 6. general, or systemic "post-operative depression."

Physical Status of Patient. The physical status of the patient is a most important consideration and calls for prompt cooperation from the internist. Patients who have a lowered resistance due to some obscure chronic ailment are frequently operated upon with the result that the normal post-operative response is considerably delayed. Occasionally this leads to poor after-results, the operation failing to accomplish its purpose. Preparatory tests call for a complete physical examination to determine primarily the fitness of the patient to withstand surgical intervention, and further, to note the existence of such diseases as syphilis, tuberculosis, nephritis or diabetes. While the presence of any one of these maladies may not necessarily lead to a fatal outcome, the hazard of the operation is markedly increased, oftentimes beyond the margins of safety. These are well known facts cited frequently in the literature on this subject, and therefore call for no specific statement of cases.

Rhinologic Status of Patient. The rhinologic examination cannot be too thorough. The decision to operate is often reached too hastily. A careful history should point out the presence of respiratory involvement, its nature and extent, and particularly its duration. If the patient has just recently become ambulatory after an attack

of influenza, during which a rhinitis or an accessory sinus was part of the major ailment, operation had best be delayed. Latent infections (especially after influenza) have occasionally caused serious complications which unfortunately are not reported in the literature as often as they occur. To a lesser extent this is true of other types of respiratory diseases.

Active infections of the nose and accessory sinuses should be definitely excluded. Clinical examination, transillumination, and the roentgenogram are adequate for this purpose, and all three of these procedures, with the occasional addition of antrum irrigation, are important and valuable helps in diagnosis. Active apparent infection in the pharynx can usually be diagnosed with little difficulty by ordinary clinical inspection, but when questionable, smears and cultures are available aids.

The normal bacterial flora of the nose has been studied by several investigators. Unfortunately the large majority centered their observations on the examination of surface smears and cultures. That such findings cannot lead to definite conclusions is quite evident. Shibley, Hanger, Dochetz and Mills¹ found that the normal basic nasal flora included staphylococcus albus, diphtheroids, and for certain persons, staphylococcus aureus and citreus; occasionally transients were Gram negative cocci and non-hemolytic streptococci.

Our bacteriologic study was divided into two parts. Smears were made of the surface nasal mucosa before anything else was done. Cultures were taken from the submucosa after the nose was painted with a five per cent. mercurochrome solution, the initial operative incision made, and partial elevation of the mucoperichondrium performed. The smears showed principally gram negative diplococci, gram negative bacilli, diphtheroid in shape, and less frequently, gram positive bacilli and cocci and gram positive diplococci. The cultures collected from the submucosa gave in most instances a gram negative bacillus, irregular in shape, presenting two types of colonies, but both possessing the same staining characteristics. In addition staphylococci of the gram negative and gram positive types were plainly in abundance. Diplococci were present in several cases, but were not always as easily determinable. Staphylococci of the gram nega-

tive type were uniformly found on every culture.*

Thus our findings are to a large degree similar to those of other investigators. The additional effort to determine a variance in surface and submucous bacteriology led to no special conclusions. Nor does this bacteriologic study directly explain some of the severe reactions which sometimes occur after intranasal operations.

An indirect relationship is likely. The bacteriologic state undoubtedly influences the resistance of the tissues. It is fairly well accepted that acute inflammation produces an immediate lowering of the resistance of membranes, while chronic infection causes changes to the extent of hyperplasia and hypertrophy, with impaired defensive elements and more or less devitalization of structure. When the acute inflammation resolves, function is again restored and the membrane once more possesses all of its normal characteristics. Chronic involvement, on the other hand, may induce a devitalization of the tissues, with permanent loss of defensive forces and a resistance lowered beyond the point of alteration by any therapeutic measures. That the normal bacterial flora of the nose does not in itself cause respiratory disease is obvious. Other factors are necessary, and in the instance where surgery with its incident trauma is an additional element, reactions can to some extent be satisfactorily explained.

Hospitalization. Before entering upon a discussion of other factors included in this review, the subject of hospitalization for intranasal operations should have some brief consideration. It appears that the day is past when rhinologists attempt major intranasal procedures in their offices. Patients should be hospitalized for at least forty-eight hours, and if conditions warrant, a longer period should be insisted upon. The added bed rest of a full day after the packs have been removed subsequent to resection of the septum or other nasal operation, accomplishes more to overcome depression and hasten recovery than any single measure. The administration of barbital sodium, grains ten, thirty minutes to an hour before the anesthetic is

started, is another important step in the avoidance of reaction frequently following the local use of cocaine.

Asepsis. A word might be said of asepsis. The frequent neglect of proper aseptic precautions has been observed in first class hospitals where it is defended by the statement, "it is only a nose operation." The care of the operating room and instruments should be the same as for any other major operation. The field should be carefully and adequately prepared. The patient's face and external nose require thorough cleansing, and the head and face, particularly the patient's mouth, covering with sterile linens planned for the purpose. The skin of the meatus is best prepared with half strength tincture of iodine solution. If the vibrissae are quite long they should be cut. Experience has led us to believe that massaging of cocaine flakes or cocaine solution into the tissues is usually unnecessary. Cotton applicators as carriers for the anesthetic, introduced in proper position and allowed to remain for thirty minutes, give adequate anesthesia in the majority of cases. Before the first incision is made the nasal chambers are thoroughly painted with a five per cent. mercurochrome solution.

Nature of Operation. Several important considerations in the operation itself are also essential for obtaining results free from complications and severe reactions. The time element requires elaboration. While it is true that difficult cases frequently consume a relatively long time for anesthesia and operation, this is not the rule for the average case. Too much time is lost in false movements which accomplish nothing, and in the lack of decision of progressive steps. A multiplicity of instruments helps to complicate matters. The experienced surgeon can well adapt himself to a few instruments with which he can work most efficiently.

A factor which has already been alluded to is that of trauma. The minimizing of tissue abuse is necessary if severe intranasal reactions are to be eliminated. Perfection of technic comes only after prolonged experience, but its significance can be kept in mind even by the novice, for whom, frequent emphasis is not superfluous. The nature of the operation itself must also be appreciated. As Shambaugh² has pointed out, "one with considerable experience in dealing with the ethmoid surgically knows the usual anatomic

*The possibilities for error in a bacteriologic study of this kind are fully realized. The results herewith reported are as we found them, employing all the usual precautionary measures against contamination.

variations which he is liable to encounter and thus approaches each case in a cautious manner. Ethmoid operating is not such a simple procedure as one at first might think. The post-operative complications may be dangerous, more so perhaps than any other intranasal procedure."

Likewise submucous resection of the nasal septum or partial turbinectomy call for the utmost in skill, care and surgical judgment. The literature contains numerous reports of bad after-results, complications and even fatal terminations after these presumably simple surgical procedures. Kunz,³ Stivers,⁴ Weinberger,⁵ Schwartz⁶ and others have recited their experiences along these lines, while Loeb⁷ collected from the literature 332 cases of fatalities following operation upon nose and throat not dependent upon anesthesia. Powell⁸ cites the instance of a fatal meningitis following submucous resection of nasal septum, Rosenthal,⁹ that of hemiplegia, and St. C. Thomas,¹⁰ that of cerebral symptoms. The complications of lesser severity are discussed by Carter,¹¹ who emphasizes the subject of nasal deformities with special reference to the previous recognition of organic diseases, and by Imperatori,¹² who recites a case of septic arthritis following submucous resection. The destruction of physiologic function after operation received consideration by Freudenthal¹³ who investigated this subject rather comprehensively and reported on it less than a decade ago.

While it is believed that the frequent incidence of many of the more severe results has to some degree been reduced during the past few years, the fact remains that complications of all sorts still occur. That reports of these do not find their way into the literature more frequently is a regrettable fact.

Packs and Splints. For years, one of the unsolved problems of intranasal surgery has been the use of packs or splints following operation. Even to this day there are two schools of thought on this subject. It is interesting to review the statements of some of the earlier and also some of the more recent writers: Weinberger¹⁴ assumed the general acceptance that packing increases the possibility of other complications, notably the infections of the operative field, the sinuses, the ears, the meninges or the throat. Tomlinson deprecated the use of packing following an ethmoid operation, while Mosher believed packing over night advisable. Key,¹⁵ who em-

ployed Bernay sponges, was dissatisfied with the number of complications, such as otitis, sinusitis, hematmata and abscess of the septum, tonsillitis, etc., and as a consequence omitted the splint. In fifty-four cases treated by Key without splint or pack, the convalescence was shorter, results better and complications fewer.

In our study we availed ourselves of all the known packs, splints and clamps. Each was tried in at least ten cases. The following are some of the types of packs: 1. dry gauze, either in one piece or in long narrow strips, 2. medicated gauze, including such medicaments as vaseline, bismuth paste, mercurchrome ointment, tincture benzoin comp., glycerin, etc. Sponge material, gutta percha, dental wax, Bernay sponges, Simpson splints and several kinds of septum clamps have likewise been employed to determine in a comparative test the superiority of one over the other. The detailed results are of no interest. Suffice it to say that the conclusion arrived at was in effect that long narrow strips of lubricated gauze serve the purpose satisfactorily. Two factors were found to influence the situation: 1. the firmness or tightness of the pack and 2. the duration it is left in the nose. The pack produces the least amount of reaction when it is introduced loosely so that no unusual bulging of the nose is caused. It should never be allowed to remain in the nose for more than twenty-four hours, and if it causes any great inconvenience to the patient, the strips on the unoperated side may be removed in twelve hours or less.

After removal of the packs, the application of heat to the face from some source such as a therapeutic lamp, for twenty to thirty minutes every three hours, is exceptionally gratifying to the patient and tends to dry up the serous secretions without the formation of crusts and exudates.

Questionnaire and Answers. During the writing of this paper, it occurred to the authors that inasmuch as the literature on this subject of the past few years was meager, some interesting and valuable data could be compiled by sending out a questionnaire to numerous rhinologists throughout the country. Accordingly, one hundred questionnaires with letters of explanation were forwarded to specialists from coast to coast. The questions asked were the following: 1. What types of reactions do you experience after the

following intranasal operations: (a) submucous resection of nasal septum, (b) ethmoidectomy, (c) tubinectomy? 2. In your experience what complications sometimes occur after intranasal surgery? 3. What special local or general measures have you adopted for minimizing possible severe resections or complications after intranasal operations? Fifty-eight replies were received.

It is rather difficult to summarize the answers as they were so radically different. It was generally agreed that following submucous resection of the nasal septum there is usually congestion of the mucosa with closure of the nares for from two to three days. Abscess of the nasal septum was reported by several as a complication of frequent occurrence. Only two suggested the use of barbital preparations before operation. The use of packs is still an undecided matter. The division is about equal. There seems to be a general leaning to the omission of the pack by the older rhinologists, some of whom say that they pack the nose rarely, and never in the presence of the slightest evidence of suppuration. Only one mentioned the use of mercurochrome solution locally before or after operation, while one suggested the employment of half strength iodine tincture.

An interesting fact is the report of three deaths after ethmoidectomy by one rhinologist. The complication was leptomeningitis in each instance. Another states that he has never seen a recovery of a case of meningitis following intranasal surgery.

Complete or partial turbinectomy is rarely performed by several rhinologists even when sinus surgery is an additional procedure.

Only a few of the reports with reference to the final question, "What special local or general measures have you adopted for minimizing possible severe reactions or complications after intranasal operations?" included any suggestion concerning the physical status of the patient or local prophylaxis of the operative field. The factor of trauma due to instrumentation is emphasized in two of the replies.

Post Operative Treatment. Prophylactic measures have already been referred to at various times throughout the discussion. It is quite obvious that if post-operative reactions are to be minimized more can be done by due care before and during the operation than after its perform-

ance. However, several measures in the regular post-operative treatment often influence the duration of the convalescent period. The so-called state of "post-operative depression"¹⁶ has to do with the general resistance of the patient. If steps are taken shortly after the patient leaves the hospital to detoxicate him and build him up with such general measures as are adequate, this period of "post-operative depression" is reduced to a few days. In the average case, such a period varies from two to fifteen days. The economic significance is therefore sufficient reason to make this an important consideration in practically every instance. A point to be emphasized is the avoidance of local therapy for five to seven days after operation. If the intranasal reaction is sufficient to be annoying, two suggestions are of value, first, the hypodermatic administration of one of the arsenicals, such as cacodylate of soda, repeated until the full physiologic effect of the drug has been obtained, and second, the use of convective heat. It is often quite remarkable how effective these are in alleviating the distressing symptoms which occasionally occur after nasal operations. The precise action of the arsenical cannot as yet be explained on anything more than an empiric basis. In our bacteriologic study only one positive culture of Vincent's bacillus was obtained, while in the same series, a positive Vincent's smear was secured from the tonsil, two weeks after submucous resection of the nasal septum. During the entire period a severe intranasal reaction existed. The symptoms promptly disappeared after arsenical medication.

Pratt¹⁷ and others advise foreign protein injections when reaction is severe and due to infection. Antitoxins of all sorts have been employed. More recently the injection of milk has come into usage for its foreign protein effect. We have used intramuscular injections of milk in acute traumatic injuries to the nose when general sepsis seemed imminent, and while we had no way of obtaining controls, systemic complications failed to occur.

The matter of hospitalization has already been discussed. There remains to be said something regarding local therapy. Cannula suction is of value during the first few days. After the sixth or seventh day some local therapy may be necessary. The use of adrenalin (epinephrine) is too often followed by undesirable secondary reac-

tions and therefore should be avoided. The same might be said for cocaine solution, or for a combination of cocaine and adrenalin. A three per cent. solution of ephedrine hydrochloride or ephedrine sulphate applied by means of tampons or spray is very satisfactory for shrinking purposes and is followed by minimum secondary reaction. If shrinkage is unnecessary, the Dowling¹⁸ treatment (argyrol tamponage) frequently tends to allay local inflammation. The tissues are depleted and a profuse drainage is promoted. The general after-effect is unusually comforting to the patient. The application of convective heat to the face, several times daily, irrespective of other measures, is probably one of the most valuable additions for the prompt elimination of local reactions.

Summary and Conclusions. 1. Various types of reactions and complications frequently follow intranasal operations.

2. The factors which influence immediate post-operative reactions are: (a) physical status of the patient, (b) rhinologic status, (c) hospitalization, (d) asepsis, (e) nature of operation, (f) use of packs and splints, (g) post-operative treatment.

3. A bacteriologic study of the surface and submucosa has failed to explain the occurrence of severe reactions incident to intranasal surgery.

4. An indirect relationship wherein the bacteriologic state influences the resistance of the nasal membranous tissues seems likely.

5. The nature of the operation with special reference to avoidable traumatic abuse of intranasal structures is an important consideration.

6. Late reactions or complications have at numerous times been reported in the literature.

7. The unsolved problem of the use of packs and splints has again been approached with the conclusion that lubricated gauze strips serve quite satisfactorily if not packed too tightly and if not permitted to remain in the nasal chambers longer than twenty-four hours.

8. Answers to a questionnaire sent to leading rhinologists yielded little that could be summarized, as the replies were so at variance. There was general agreement on the types of complications, while the majority also agreed that reactions of a mild or severe degree are of common occurrence. This in contradistinction to the contention of a minority that post-operative

reactions are not experienced. Few offered any substantial suggestions for minimizing local or general reactions.

9. Our study prompts us to advise, in addition to the points already mentioned, the avoidance of local intranasal therapy during the first week after operation. The state of "post-operative depression" can be overcome by suitable general upbuilding measures, and with favorable systemic response, local reactions, if present, promptly subside. The application of convective heat to the face is probably one of the most valuable additions in therapy for the elimination of distressing local symptoms.

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DISCUSSION

Dr. Frank Novak, Jr., Chicago: I had the pleasure of reading this paper as written, and I am sorry

that Dr. Hollender did not read the complete paper. It is a most comprehensive survey of this question of reaction following nasal operation. I have had occasion to inquire from some of my friends regarding the extent of reaction. Some get none and some have had excessive reactions. Then I began to realize that with some men reaction short of coma is not a reaction at all, while with others a few snuffles is. So the question is something like—how long is a piece of string. I have had excessive reaction following submucous resection, exudate removed day after day and patients disabled for a long time. We checked up on the operative technique, the surgeons' hands and other things and still were in trouble. Dr. Haney suggested the use of mercurochrome. So from that time on we used a 10 per cent. solution of mercuriochrome. After finishing the operation we swab the spaces between the two flaps and the entire nose with 10 per cent. solution. It is surprising to find that the reaction amounts to nothing and the patients breathe freely. There has been some question about using 10 per cent. solution, as 2 per cent. was thought to be sufficient. The stronger solution does not cause any irritation and has proven a most remarkable help in obviating the reaction we had been accustomed to.

Dr. Robert Sonnenschein, Chicago: The mucous membrane of the nose no doubt harbors bacteria. I would like to ask Dr. Hollender whether they found any in the submucosa. There is always a possibility that you may touch a place that is not sterile. I would assume that below the mucosa the tissues are sterile. I would like to ask about the ultimate results. The late result that we see so often is the marked change in the mucous membrane in the nose when too much is removed from the inferior turbinate. I notice that a good many men still take off a large portion of the inferior turbinate. This is covered by columnar epithelium and that epithelium is never reproduced, when once removed. It becomes covered by scar tissue which does not serve the same purpose of moistening the nose, and so-called postoperative atrophic rhinitis may result.

Dr. Clarence A. Hercules, Harvey, Illinois: One element to be considered in intra-nasal surgery is that of time; that is, time in relation to the time of the beginning of an acute infection of the sinuses. I have made it a rule never to operate on a nose within the first few hours of an acute infection if it is possible to avoid it. The late Dr. J. B. Murphy discovered that there are two periods in appendiceal disease where there is little reaction, one is very early and the other is after the patient has somewhat gained an immunity for the particular infective organism invading the tissues involved.

Dr. Murphy told his students that in acute appendicitis if operation be done within twenty-four hours of the beginning of an attack the mortality is very low; if operation be performed during the second or third day the mortality was necessarily very much higher and he advised operative interference at this

time only on the ground of complicating peritonitis. Later an operation does not endanger the patient to a violent reaction, so is the time of choice. It has been my experience that therapeutic measures at our command will almost invariably permit sufficient delay to permit ventilation and drainage sufficient to await a reasonable degree of immunity to the particular germs producing the acute infection. So I try to avoid operating an acutely active intra-nasal condition.

Dr. A. R. Hollender, Chicago; (closing): Two factors which are rather important to minimize the reactions and complications frequently occurring as a result of intranasal surgery are 1, the physical status of the patient, and 2, hospitalization. While not so many nasal operations are done in offices nowadays as formerly, our survey showed that many rhinologists still cling to the older program disregarding hospitalization, thorough asepsis, post operative care and other necessary details. The physical status of the patient and the post operative care are essential requirements upon which a good result often depends. The use of mercurochrome in the nose is a step which we have adopted as a routine. It is an earnest attempt to produce local cleanliness, if nothing else, and is effective in minimizing severe reactions. Infection of a virulent nature such as that produced by Vincent's organisms is one of the most obstinate things the rhinologist has to contend with. I recall one case in which a very severe reaction developed in the nose and throat as a result of the Vincent's bacillus. The occurrence of complications due to this factor can be eliminated to a large extent by the use of arsenicals, either before or immediately after operation. There is no harm in the use of cacodylate of soda administered for two to three days after operation or until a physiologic effect is obtained. The late results or complications are considered in some detail. We refer particularly to complications, and complications of intranasal operations have been reported so frequently, and often are of such a serious nature, that altogether too little attention is given to this subject. I might say with reference to inferior turbinectomy, that few rhinologists perform this operation today. It is indeed an excellent thing that this procedure has been ruled out of good surgery. Exceptions sometimes occur, but they are rare. The seasonal factor deserves a great deal of consideration. This point was brought out by several rhinologists who answered the questionnaire. In our experience, with the adoption of a definite program for the management of these cases, as outlined in the paper, we have not found that complications or reactions were more frequent or more severe during the colder months than during the warmer. There are additional factors to be worked out. In the course of time we shall be able to present further reports of our experimental work along these lines.

NEUROBLASTOMA, IN INFANCY, WITH REPORT OF A CASE*

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A comparatively small number of cases have been reported that are definitely recognized as primary malignant tumors of the nervous element of the adrenal; this rarity is due to lack of recognition rather than its infrequency. These tumors are composed of embryonic tissue, and are now quite generally accepted as neuroblastoma. Believing an additional typical case to be of value, is my reason for this presentation.

The following case was recently under my care:

Baby Miller, only child, white, male, fourteen months old:

Entrance Complaint: Hard swollen abdomen with large mass in upper right quadrant.

Family History: Irrelevant.

Past History: Normal birth. Mother first noticed that the baby's abdomen was enlarging and the skin becoming pale about four months previous to admission. The swelling and anemia progressed without marked constitutional disturbances. The onset was very insidious, and the symptoms were mainly objective. As the tumor enlarged, the abdomen became more distended. The child developed a white pasty color and was constipated. Anorexia, dyspnea and anemia became more marked as time went on. Blood count on admission; red cells 2,620,000; leucocytes 10,150; hemoglobin (Dare) 35%.

Transfusion of citrate blood was done October 27, 1927. The constipation and dyspnea probably resulted from pressure, and the anemia from mal-nutrition. There was definite pressure obstruction at the pylorus. Fluoroscopic examination showed that none of the barium meal left the stomach for over two hours, and considerable of the meal was still in the stomach 10 hours later. Radiogram showed a tumor mass in upper right quadrant bulging into the right flank and extending to the pelvis. The colon was pushed to the left and downward, definitely outlining the mass.

Pre-Operative Diagnosis: Solitary cyst of the right kidney.

Operation—November 2, 1927: Ether anesthesia. A right rectus incision, continued through the posterior peritoneum exposing the tumor, which was to the right of the ascending colon, larger in size than the child's head, occupying the entire right flank. The tumor was bluish in color and completely encapsulated by a fibrous membrane. The liver and gall bladder were not involved in the mass and appeared normal.

The peritoneum was stripped off the front of the mass towards the vena cava down to a fairly well defined pedicle. The capsule was thickened and closely adherent to the peri-renal fat posteriorly. The contents had to be aspirated before it was possible to remove the tumor, on account of its size. A trocar was inserted into the cyst and 45 ounces of old dead blood, in various states of disorganization, escaped. The trocar wound was enlarged and considerable necrotic tissue, debris, and old blood clots escaped. The cyst wall was made free down to the pedicle. At this point the baby went into extreme shock, and a



Fig. 1. Radiogram showing stomach two hours after barium meal was administered. None of the barium meal left the stomach.

rapid clamping of the pedicle, removal of the cyst wall and mass ligation, was done. No attempt was made to locate or identify the ureter, renal artery or vein. The condition of the infant would not permit further exploration, and the origin of the tumor was somewhat in doubt. A counter opening was made in the flank, and a quick closure of the wound was done. A large rubber drain was placed in the wound.

Post Operative Diagnosis: Solitary hemorrhagic cyst of the right kidney, associated with malignant neoplasm.

Post Operative Condition: Extreme shock. Immediate shock treatment was instituted, 200 c.c. of citrate blood was injected through the drainage tube into the abdominal wound, and tube clamped. A subcutaneous injection of 100 c.c. of citrate blood was also done under each arm. Recovery from shock was

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prompt. The wound healed in 14 days and the patient was discharged from the hospital 22 days after the operation in excellent condition.

Subsequent Course: The operative recovery was very satisfactory. The baby had always been dull, listless, and had never behaved as a normal infant. All this was more noticeable to the mother about four months previous to admission, and it became gradually worse. Immediately after the operation, the general improvement was spectacular, the baby became bright,

an irregular internal surface, and in the upper part of the cyst wall were fragments of necrotic, white, apparently neoplastic, tissue. There were areas of hemorrhage in the wall.

Microscopic: The microscopic sections showed solid groups of varying size of small round cells with deeply staining nuclei located in a rather granular matrix. There were no traces in the sections of renal structure or of the structure of any other organ. One definite "rosette" and several more indefinite similar structures were found. Preservation of the tissue precluded staining for neuroglia and neuro-fibrils. From past experiences, however, such "rosettes" and the arrangement of the cells in the fibrous stroma are typical of neuroblastomas. Wright has named such tumors neurocytomas. We feel, however, that the tumor is a more primitive cell type, therefore a neuroblastoma.

Diagnosis: Neuroblastoma, originating in the medulla of the adrenal, or nervous element of the adrenal gland.

The sections were examined by Doctors G. H. Hans-



Fig. 2. Radiogram ten hours after barium meal was administered. Considerable of the meal still in the stomach.

playful, gained several pounds in weight, and the color became good; in fact, the child appeared normal in every respect. This improvement continued until four months after operation. At this time, a movable mass about the size of a lemon was palpated in the right upper quadrant. It appeared to be cystic. Shortly after this mass was noticed, the baby began to lose weight, had loss of appetite, and showed progressive anemia. It was then sent to the State University of Iowa for deep x-ray therapy, being there under observation for about 2 months. It was transfused twice and it was reported that the mass subsided and the baby's condition showed improvement. This improvement, however, was of short duration. It developed a huge mass in the right side of the abdomen and finally died April 25, which was approximately 6 months after the operation.

Pathology, Gross Specimen: The gross specimen consisted of a cystic mass, 18 centimeters in diameter, which had been opened and the contents evacuated. The wall appeared to consist of fibrous tissue with



Fig. 3. Radiogram twenty hours after barium meal was administered, showing the colon filled and quite definitely outlining the mass.

mann, pathologist, State University of Iowa, and Ludvig Hektoen and J. J. Moore, Chicago.

Literature: The development of the sympathetic system and adrenal medulla is generally accepted. It has been shown that the peripheral nervous system is derived from neurocytes, cells which still have the neuropithelial character of the primitive neural tube from which they come.

By division these form the formative cells of the sympathetic system. From this type of cell the embryonic adrenal medulla is formed. Wright in his paper "Neurocytoma or Neuroblastoma, a Kind of Tumor Not Generally Recognized," published in 1910, called attention to a group of tumors rich in cells varying much in size and shape. The essential cells were considered to be more or less undifferentiated nerve cells, neurocytes or neuroblasts, from which the names neurocytoma and neuroblastoma originated. These cells, associated with fibrils and having the same morphology as the cells from which the sympathetic nervous system and the adrenal develop, were regarded as arising from migrated primitive cells. It is also characteristic of these cells to form an arrangement of grouping in the form of balls, the cells arranged peripherally, with the cytoplasmic processes centrally, giving a suggestion of a small cavity in the center. Kuster gave the name "rosette" to this arrangement. Schilder, in 1909, advanced the idea that "rosettes" were formed of embryonic glia tissue, which was misplaced, but did not believe that such structures were formed normally; but it has since been proven that this "rosette" arrangement is found normally in the sympathetic ganglia and in the adrenal, as well as the connective tissue about these structures, at certain periods of fetal life. The characteristics of the "rosette" repeat themselves in the neuroblastoma. This relationship of the adrenal medulla to the sympathetic system is well established.

Wright was the first to establish the neuroblastic theory, and to use the term "Neuroblastoma." The distinction between neurocytoma and neuroblastoma has been developed since then by others.

Tumors of Neurogenous Origin: These are well described in the literature.

(a) *Neurocytoma* is composed of medullary neuroblasts. It was described by Marchard, 1907, as made up of solely embryonic cells. It is the undifferentiated type arising in the cerebro-spinal nervous system.

(b) *Neuroblastoma* is composed mainly of sympathetic formative cells, also of the undifferentiated type, arising in the sympathetic nervous system.

(c) *Ganglioneuroma and Chromaffine Tumors:* These are highly differentiated in type and are usually benign in character.

(d) *Transitional Types:* There is acceptable evidence of transitional types, between the differentiated ganglioneuroma and chromaffine type on one hand and the undifferentiated neuroblastoma and neurocytoma on the other. The articles published by Wahl, Lehman and others, demonstrate well the transitional types. In some of the tumors all types or stages are shown histologically. The relationship between ganglioneuroma and neuroblastoma is generally accepted.

Characteristics of Neuroblastoma: Neuroblastoma is composed of embryonic tissue and is a primary neoplasm, which may undergo retrogressive changes with necrosis. Most of the tumors reported have their origin in the medulla of the adrenal, but it has been found elsewhere in other sympathetic structures, roots of cranial nerves and a number of cases have been reported in the brain. When arising in the adrenal, it is almost always found in early infancy, and the growth is always well encapsulated and does not tend to directly invade surrounding organs. It forms quite rapid growing and extensive metastases, generally in the liver, neighboring lymph



Fig. 4. Photograph showing distended colon and tumor mass.

glands and bones, especially those of the skull. These secondary growths are characteristic of neuroblastoma. On histologic examination it is frequently very difficult to classify. The "rosettes" do not occur in large numbers, and are quite rare in the mass of ill defined tissue. Frequently it is not possible to demonstrate adrenal cortical cells, as was found in my case. Lehman, who reviewed the literature carefully, does not believe that sex has any relation to the tumor, and as to age, the more undifferentiated the tumor, the younger the patient, and the more differentiated tumors are found in older patients.

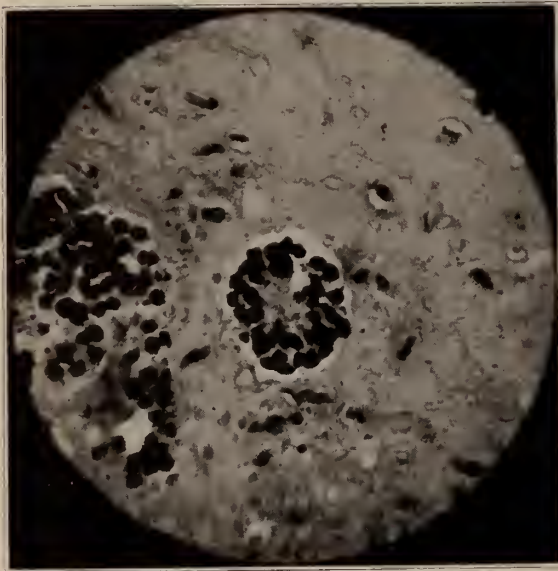


Fig. 5. Micro-photographs showing the "Rosette" formation from the tumor removed at operation.

The degree of malignancy appears to diminish somewhat in older patients with a more differentiated type of tumor. Neuroblastoma of the adrenal is most certainly a disease of infancy.

Discussion: This case is very similar in many respects to the one reported by Lehman. In both the tumors were well encapsulated. There was a marked pressure atrophy of the adrenal cortex, but the cortical cells were found in his case; in mine, the cortical portion was completely destroyed. In none of the sections examined was it possible to demonstrate adrenal cortical cells. Both cases survived operation; his patient was well without recurrence two and one-half months after operation, at the time his paper was presented. What subsequently happened was not reported. My case survived oper-

ation six months, four months of which there was no evidence of metastasis. When metastases did occur they were in the favorite sites, liver and regional lymph glands. The finding of the rosette formation establishes quite well the diagnosis.

Necropsy: Reported by Dr. G. H. Hansmann as follows:

At the time of autopsy a large retroperitoneal tumor mass was found which was pushing the stomach and liver up and had displaced the gut to the left side. Grossly, this tumor mass had the appearance of a very cellular neoplasm in which there was much necrosis and cyst formation. The right kidney was found imbedded within this tumor mass. Nearly all the kidney substance had been destroyed. The pelvis of the kidney, however, remained and no tumor was seen within it. In addition to this retroperitoneal mass there were large glands in the mediastinum which were filled with tumor. The tumor was also found in the right spermatic cord. The testicle, however, was not involved.

Histologic sections from the tumor mass are much like those seen in the surgical specimen which you removed. The tumor is made up of small round undifferentiated cells with deeply stained nuclei and very little cytoplasm. There is some attempt at rosette formation. This, however, is not striking.

We, therefore, feel that this tumor arose in the medulla of the adrenal gland. At the time of operation you probably removed the adrenal gland along with the original tumor mass. The tumor found at autopsy represents a recurrence of the local tumor with metastasis to the mediastinal glands and to the spermatic cord.

Diagnosis: Neuroblastoma.

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DISCUSSION

Dr. S. E. Munson, Springfield: Is it not likely that the diagnosis of these cases is very frequently suspected to be sarcoma of the kidney?

Dr. Albert E. McEvers, Rock Island (closing the discussion): There is no doubt as to the fact that many neuroblastomas have been thought to be sarcomas. There are two phases in the literature. The old literature classified this tumor under sarcoma, and the new literature now classifies it properly as neuroblastoma. The reason it is not seen more frequently in the literature is due to the lack of its recognition rather than its infrequency. Here is not any chapter in pathology that has offered more difficulty and confusion than in the classification of malignant renal tumors. Hypernephroma and neuroblastoma are now quite well understood and the confusion relative to this classification is approaching a plane of much better understanding.

A REVIEW OF HYPERTHYROIDISM IN PRIMARY HYPERPLASTIC ADENOMATOUS AND COLLOID GOITERS

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In a number of cases of hyperthyroidism, operated upon at the Presbyterian Hospital of Chicago, the clinical records and microscopical sections of the extirpated glands were studied and an attempt made to compare the severity of clinical symptoms with the pathological picture presented. The result of the study is similar to that found and reported by others. In this series, however, we found that hyperthyroidism in adenomatous goiter was much more severe than we had pictured it. We also found that it was often very difficult to anticipate, clinically, the pathological type of goiter present.

The patients in this series of cases came from the states of Illinois, Indiana and Wisconsin.

The etiology of hyperthyroidism has been ascribed to many causes. Opinion at present seems to favor the view that in exophthalmic goiter the secretion is a perverted one, while in adenomatous and colloid goiter there is perhaps either an increase of thyroglobulin produced, or the thyroglobulin is not stored in the normal manner and the clinical entity described as hyperthyroidism is thus initiated.

The pathologist has grouped the cases reported into hyperplastic, cystadenomatous, ade-

nomatous and colloid goiter. This grouping was made by a study of the gross and microscopical examination of the excised gland.

The primary hyperplastic goiter on gross examination is of a firm consistency and has the appearance of meat. Lobulations are often present.

The exophthalmic or primary hyperplastic goiter made up thirty-one per cent. of the cases reported. The characteristic microscopical pathology in this type of gland is a hyperplasia and hypertrophy of the parenchyma; with round cell infiltration of the interacinous spaces.

There is often a total absence of colloid or the colloid stains poorly. The parenchymatous hypertrophy and hyperplasia may involve the entire gland or may be seen in portions of it only.

The epithelial cells may be detached from the basement membrane and occupy the acinar space or they may be absent.

Round cell infiltration of the interacinous spaces is a nearly constant finding, however; the blood vessels are abundant and dilated. The microscopical picture may differ in various parts of the gland depending upon the progress and stage of the hyperthyroidism.

On gross examination in adenomatous goiter nodules of varying sizes may be seen throughout the gland. Or, if the nodules are small they may be felt as small, shotty masses in the gland. On cut sections the nodules have a grayish translucent appearance, or, if degenerative changes have taken place, small yellowish areas may be found. Cyst formation also may be present. The cysts, varying in size from a small pea to the size of an orange, are often filled with thick fluid.

The adenomatous goiter with hyperthyroidism made up fifty per cent. of the cases reported. Microscopically there is evidence of epithelial hyperplasia and hypertrophy. The acini are lined with columnar or cuboidal cells.

There may be a total absence of colloid or the colloid may stain poorly. Scattered throughout the gland may be found definite encapsulated areas of deeply staining cells, which may be closely packed together, or they may form acini containing colloid. The evidence of hyperplasia is also manifested by the increase of the densely packed acini. Round cell infiltration is commonly observed.

The diagnosis of cyst-adenoma was made on

gross and microscopical examination. The microscopical finding is essentially the same as the adenoma though evidence of cyst degeneration is often seen.

Colloid goiter with hyperthyroidism made up 13.7 per cent. of the cases reported. Of this number approximately five per cent. showed exophthalmos.

Microscopically there is very little to distinguish the colloid goiter from the normal gland. In some sections, however, evidence of hypertrophy may be seen in the columnar type of epithelium of the acini. Small areas of round cell infiltration are also encountered. There may be evidence of excess colloid storage with distention of the acini. The microscopic diagnosis of hyperthyroidism in colloid goiter is at best very difficult if possible at all.

It is the adenomatous goiter with hyperthyroidism which causes confusion as to the pathological classification of goiter; 40.5 per cent. of the cases reported in which exophthalmos was found were classified by the pathologist as adenoma. If we accept the contention of Plummer that exophthalmos never occurs except in a gland showing hyperplasia and hypertrophy, these should be included in the exophthalmic group. There is a group of cases which show adenoma or an "adenomatosis" on re-operation. This finding has been present in several cases in which a primary hyperplasia was the finding at the first operation.

In cases such as these the adenomatous tissue may have been present in the resected gland, but was not present in the sections or it may have arisen because of some physiological demand upon the resected thyroid. The reason of adenomatous tissue in thyroid is not clear. It has been explained as being due to regenerative process and degenerative processes in the gland. Whatever the reason, adenomatous tissue is found in hyperplastic thyroids.

The following is the pathological classification of the cases reported with the age of the patients given:

<i>Hyperplastic:</i> 50 cases (70 per cent. between ages of 21-40).	
15-20 years	5 cases
21-30 years	19 cases
31-40 years	17 cases
41-50 years	6 cases
51-60 years	3 cases

Cyst-Adenoma: 41 cases (53.65 per cent. between ages of 21-40).

15-20 years	8 cases
21-30 years	10 cases
31-40 years	12 cases
41-50 years	4 cases
51-60 years	7 cases

Colloid: 30 cases (73½ per cent. between ages 21-40).

15-20 years	4 cases
21-30 years	17 cases
31-40 years	5 cases
41-50 years	3 cases
51-70 years	1 case

Adenoma: 39 cases (56.4 per cent. between ages 21-40).

15-20 years	4 cases
21-30 years	12 cases
31-40 years	10 cases
41-50 years	11 cases
51-70 years	2 cases

Exophthalmic:

Hyperplasia	32	15-20 years	13.12 per cent.
Adenoma	28	21-30 years	36.24 per cent.
Colloid	9	31-40 years	26.24 per cent.
		41-50 years	14.37 per cent.
		51-60 years	8.12 per cent.

The condition referred to as hyperthyroidism was considered to be present by the clinical findings of an enlarged thyroid, increased nervousness and irritability, tachycardia, tremor, increased basal metabolic rate, and the associated symptoms of fatigue, nausea, vomiting and diarrhea in severe cases. In the less severe cases an enlarged thyroid, increased nervousness and irritability, tachycardia and a basal metabolic rate of +20 or more, was a constant finding and by exclusion established the diagnosis.

Sex.—Of the 183 cases reported, eighty-three per cent. were women and seventeen per cent. were men.

Age.—The youngest was twelve years of age; the oldest was sixty-four years of age. Seventy-two per cent. of the patients classified as primary hyperplasia, seventy-three per cent. of those with colloid goiter and fifty-five per cent. of the patients with adenoma were between twenty-one and forty years of age.

Onset and Courses.—The onset of hyperthyroidism in the cases reported was ascribed by the patient to psychic trauma, such as grief, worry or fright, in eighteen per cent. of the cases, while infections, such as tonsillitis, were ascribed as the cause in eleven per cent. of the cases. These causes may have lighted the "explosive" hyperthyroidism and are not to be considered as the direct cause. The duration of time elapsing between the onset of symptoms and the time the patient sought relief in most instances can only be approximated. Fourteen per cent. gave a history of one to three months' duration; 16.9

per cent. of four to six months; 16.3 per cent. of one year; 7.6 per cent. of three years; 7.6 per cent. of seven to twelve months; 7.6 per cent. of two years, and 30 per cent. gave a history of several years' duration.

Symptoms.—One of the earliest noted and most marked symptoms was increased nervousness and irritability. This was so pronounced as to be the outstanding symptom in ninety per cent. of the cases reported.

The nervousness was manifested by a seeming purposeful moving of the hands and feet and a desire of the patient to be on the move. The mental irritability of the patients was often so marked that they quarreled with their friends and relatives and were easily provoked; they cry easily and are considered to be "flighty" or "nervous."

Tachycardia was noted by patients in sixty per cent. of the cases and was often the symptom that brought them to their physician. They complained of palpitation, often, with or without muscular effort. Precordial pain was complained of in seven per cent. of the cases.

Cardiac enlargement with a forcible apex beat was a common finding. Systolic murmurs were noted in forty-three per cent. of the cases reported. In the crisis with cardiac degeneration, the symptoms of decompensation were marked. A rapid irregular pulse, edema of the extremities and the associated findings were found.

Tremor.—The finding of tremor of the hands, tongue and feet was noted in sixty per cent. of the cases. It is an associated symptom and when accompanied by others mentioned is significant.

Sweating, dizziness, flushing of the face, nausea, vomiting and diarrhea were complained of in thirty-seven per cent. of the cases. Often they were early symptoms and were not associated in the patient's mind with thyroid enlargement. Loss of weight was noted in thirty-seven per cent. of the cases. This finding is rather a common one, despite the fact that many patients state they have a greatly increased appetite. This seeming discrepancy is, of course, explained by the increased metabolic rate found.

Exophthalmos was noted in thirty-seven per cent. of the cases. When this symptom was present the other symptoms of hyperthyroidism were usually pronounced. Of the cases showing exophthalmos thirty-two were classified as primary hyperplasia, twenty-eight as adenomas and nine as

colloid goiters. Dyspnea on exertion was noted by eighteen per cent. of the patients. This symptom was often associated with cardiovascular changes. The beginning of cardiac fatigue was found in many of the patients complaining of this symptom.

Fatigue, after muscular effort, was noted in forty-two per cent. of the cases. It is worthy of mention because patients with hyperthyroidism as a rule are eager to work, but find that they often become easily and rapidly fatigued after the slightest exercise.

Erythema of the Skin.—Friction applied to the skin over the thyroid area produces in hyperthyroid patients a marked flushing of the skin in that area. This flushing is very easily produced and is not found in so pronounced a degree elsewhere on the body, or over the area of the thyroid in normal individuals. It seems to be a characteristic sign of the disease, but is of no especial significance.

Blood Pressure.—In a check of the blood pressure readings in hyperthyroidism the elevation above normal was so slight and so few patients showed any change from normal, that it would not seem to be an important diagnostic point in the disease. We did not find any essential difference in blood pressure in exophthalmic goiter and adenoma with hyperthyroidism. An increase in pulse pressure is, however, often found.

Urinary Findings.—Transient glycosuria was found occasionally, but it cleared up on management. There was no urinary finding in hyperthyroidism that was not explainable as a complication.

Treatment.—The preoperative treatment in the cases reported was rest in bed. An ice coil was applied to the precordial region. Sedatives such as bromides or morphin were given in small doses as indicated:

Morph. sulph. gr. 1/6

Sodii bromid gr. x to xx

Patients having symptoms of heart fatigue or decompensation were given tincture of digitalis.

The diet was high in carbohydrates and sugars, and low in proteins. Fluids were given freely by mouth, rectally and in severely toxic cases by hypodermoclysis as well. Teas and coffee were forbidden.

Iodin.—The use of iodine in the form of "Lugol's solution" has been a valuable adjunct in

the preoperative and postoperative treatment of hyperthyroidism.

In preoperative treatment a lowering of the basal metabolic rate and an improvement in the condition of the patient was a general finding in all pathological types of goiter in which iodine was used. The cessation of symptoms in hyperthyroidism following the use of iodine is only a temporary one, however. Remissions occur and in some cases, notably in patients with adenomatous goiters, an exaggeration of the toxic symptoms is occasionally found afterward. The improvement under iodine is also more apparent than real in many instances, so that it is more difficult after using it to gauge the effect of operative trauma upon the patient. Because of the apparent improvement, it is well, I think, to consider this factor in deciding upon the advisability of polar ligation or a more radical procedure in severely toxic cases which have been treated with iodine salts. While the use of iodine is decidedly beneficial, its use is not a substitute for nor an equal to polar ligation in severe cases.

Ligation.—Preliminary ligations were done in eighteen per cent. of the cases reported. This was followed by thyroidectomy as soon as the patient's condition warranted the more radical procedure. The time elapsing varied from two to twelve months.

Anesthesia.—Infiltration anesthesia, using one-half per cent. solution of novocain, was used in thirty-five per cent. of the cases reported. When the co-operation of the patient can be obtained it is the ideal anesthesia. The postoperative retching with loss of body fluids is nearly entirely done away with and this factor is a great one in favor of its extensive use.

Ethylene or ethylene and local anesthesia was also employed and found most satisfactory of all.

Ether, while used occasionally, is not the anesthesia of choice because of the postoperative loss of fluids through vomiting.

Postoperative Treatment.—In the postoperative treatment the administration of large quantities of fluids is quite essential and very beneficial.

Patients who have been operated on under local anesthesia were allowed to have water by mouth before leaving the operating room.

To maintain the fluid balance, fluids were

given by hypodermoclysis as well as by mouth in the toxic cases.

Repeated small doses of sedatives, such as bromides and morphin, were given freely to keep the patient quiet and free from apprehension as possible.

Cardiac stimulants were used as indicated, and in severe toxic cases with a postoperative crisis manifested by rapid pulse and rise in temperature. The use of ice packs to the body proved very satisfactory and was an adjunct to the postoperative treatment.

Mortality.—The operative mortality in the cases reported was six or 3.2 per cent.

Four of the patients were in a severely toxic condition and had had preliminary ligations done at intervals before the thyroidectomy. One death followed a ligation in a woman with a basal metabolic rate of +180. One death occurred eight days postoperative from a coronary embolus.

Complications.—The postoperative complication, most often seen in thyroid surgery is the so-called "thyroid crisis," which usually appears within twenty-four to forty-eight hours. "Thyroid crisis" may follow a unilateral or bilateral pole ligation, a partial or subtotal thyroidectomy and it has also been observed in hyperthyroid patients who have been operated on for some other cause than their hyperthyroidism. The cause of the "crisis" is not known. Absorption of protein substances following thyroid operations has been suggested as the probable etiological factor. It seems more reasonable to assume that the operative trauma "sets off" the chain of symptoms known as the "crisis" in patients whose nervous mechanism is so easily upset as those in the toxic thyroid.

In the crisis there is a rising pulse which may assume an alarming proportion, an elevation of the temperature which in the severely toxic cases may rise to 103-105 degrees. The patient is restless and irritable and is often difficult to control. Vomiting may be so severe as to threaten to dehydrate the patient. Unless the symptoms are relieved by suitable therapeutic measures death ensues. The cause of death is probably due to cardiac failure and exhaustion.

While it is impossible to entirely prevent the so-called "crisis," suitable preoperation management greatly decreases the severity of it. The

selection of the proper time for operation, the use of Lugol's solution, and the use of anesthetics such as ethylene or novocain infiltration is an important factor. Avoiding unnecessary operative trauma and "breaking off" of the operative procedure when the patient's condition is not good is perhaps the best way to reduce the incidence of the postoperative "crisis" to a minimum.

Hemorrhage.—Postoperative hemorrhage in the cases reported was infrequent because rigid hemostasis was insisted upon. One case in which local anesthesia was used was submitted to another operative procedure to stop the bleeding.

Postoperative oozing is more difficult to control especially in soft degenerative goiters. In several cases packing of the wound was resorted to.

The formation of hematoma, which may be dangerous by causing pressure on the trachea, was not a serious factor. Proper drainage of the wound and frequent inspection and changing of bandages obviated any serious results.

Tracheitis.—Patients with large goiters where there was much manipulation of the trachea and in cases in which it was necessary to remove a large portion of the isthmus, suffered from tracheitis. Tracheitis is a very annoying symptom to the patient. None of our cases developed it

to so severe a degree as to cause any symptoms of edema of the glottis.

Injury to the Recurrent Laryngeal Nerve.—One case was observed in which this unfortunate accident occurred. The left recurrent laryngeal nerve was injured in the removal of a small hyperplastic goiter. The nerve was probably compressed by a suture or hemostat. Immediately after the operation the patient became hoarse. There was also choking on swallowing for a few days. Three weeks following the operation there was a decided improvement in speech, but laryngeal examination failed to show any movement of the left vocal cord.

Purpura Hemorrhagica.—A young woman with a severe hyperthyroidism who had been ligated and then had a thyroidectomy performed re-entered four weeks after her last stay in the hospital. She had submucous and subcutaneous hemorrhages. Ante- and post-mortem diagnosis was purpura hemorrhagica. A young man who had a severe thyrotoxicosis was seen several weeks following a subtotal thyroidectomy with conjunctival and subcutaneous hemorrhages which were not severe and which disappeared in about three weeks. No blood calcium examinations were done. The hemorrhages in the first case were not due

TABLE 1
ADENOMA AND CYSTADENOMA

Oper.	Duration of goiter	Exophthalmos	Health improved	Ordinary work	Extra work	Gain in weight	Tremor hands	Nervous	Rapid heart
1 yr.	6 yrs.	No	Yes	Yes	No	Yes	Yes	Yes	Yes
1 yr.	1 yr.	No	Yes	Yes	Yes	Yes	No	Slight	No
1 yr.	10 yrs.	No	Yes	Yes	No	Yes	Slight	Past mo.	At times
1 yr.	4 yrs.	Yes	Yes	Yes	Yes	Yes	No	Not now	No
1 yr.	16 yrs.	No	Yes	Yes	At times	Yes	No	Sometimes	No
2 yrs.	3 yrs.	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2 yrs.	3 yrs	No	Yes	Yes	Yes	Yes	No	At times	No
2 yrs.	6 mos.	Yes	Yes	Yes	Sometimes	Yes	...	Yes	Yes
2 yrs.	3 yrs.	No	Yes	Yes	Yes	Yes	No	No	No
2 yrs.	20 yrs.	No	Yes	Yes	Yes	Yes	No	No	No
2 yrs.	1 yr.	No	Yes	Yes	Yes	Yes	No	No	No
2 yrs.	8 yrs.	No	Yes	Yes	Yes	Yes	No	Yes	No
2 yrs.	10 yrs.	No	Yes	Yes	Yes	Lost	No	Not much	No
2 yrs.	5 yrs.	No	No	No	No	No	No	Yes	Yes
2 yrs.	3 yrs.	Yes	Yes	Yes	No	Yes	No	Slight	Yes
2 yrs.	4 yrs.	Yes	Yes	Yes	No	Yes	No	Yes	At times

TABLE 2
ADENOMA AND CYSTADENOMA

Oper.	Duration of goiter	Exophthalmos	Health improved	Ordinary work	Extra work	Gain in weight	Tremor hands	Nervous	Rapid heart
2 yrs.	2 yrs.	No	Yes	Yes	No	Yes	No	Slight	No
2 yrs.	5 yrs.	No	No	Yes	No	No	No	Yes	Sometimes
2 yrs.	4 yrs.	Slight	No	No	...	Yes	No	Yes	No
2 yrs.	8 yrs.	No	Yes	Yes			When overtired		
3 yrs.	5 yrs.	No	Yes	Yes	Not tried	Yes	Slight	No	No
3 yrs.	6 mos.	Yes	Yes	Yes	Yes	Yes	Slight	Slight	No
3 yrs.	15 yrs.	Slight	Yes	Yes	No	Yes	Slight	Sometimes	Yes
3 yrs.	3 mos.	Slight	Yes	Yes	Yes	Yes	No	No	No
3 yrs.	3 mos.	Slight	Yes	Yes	No	Yes	No	Yes	No
3 yrs.	20 yrs.	No	Yes	Yes	Yes	Yes	No	Slight	No
3 yrs.	3 yrs.	Yes	Yes	Yes	Yes	Yes	Slight	Yes	Times
4 yrs.		Yes	Very little	No	No	No	Slight	Yes	Yes

SUMMARY—27 Cases

23 show improved health
4 show no improvement in health
24 can do ordinary work
3 are unable to do ordinary work

15 are able to do more than ordinary work
10 are unable to do more than ordinary work
23 show gain in weight
11 show rapid heart

TABLE 3
COLLOID

Oper.	Duration of goiter	Exophthalmos	Health improved	Ordinary work	Extra work	Gain in weight	Tremor hands	Nervous	Rapid heart
2 yrs.	1 yr.	No	A little	Yes	No	No	Yes	Yes	Yes, at times
2 yrs.	2 yrs.	Have yet	Yes	Yes	Yes	Yes	No	No	No
2 yrs.	3 yrs.	Slight	Slight	Yes	If not exciting	Slight Back to normal	Yes	No	At times
3 yrs.	1 yr.	No	Yes	Yes	Yes	Yes	No	No	No
3 yrs.	5 yrs.	Yes	Yes	Yes	Yes	Yes	No	No	No
4 yrs.	30 yrs.	No	Yes	Yes	No	Yes	No	Yes	No
4 yrs.	25 yrs.	No	Yes	Yes	Yes	No	No	No	No

SUMMARY—7 Cases

5 show improvement in health
2 show slight improvement in health
7 can do ordinary work
4 can do extra work

4 show gain in weight
2 show nervous symptoms
2 show rapid heart

TABLE 4
PRIMARY HYPERPLASTIC

Oper.	Duration of goiter	Exophthalmos	Health improved	Ordinary work	Extra work	Gain in weight	Tremor hands	Nervous	Rapid heart
1 yr.	4 mos.	No	Yes	Yes	Yes	Yes	No	No	When excited
1 yr.	7 mos.	Yes	Yes	Yes	Yes	Yes	No	No	No
2 yrs.	12 yrs.	Yes	Yes	Yes	Yes	Yes	No	No	No
2 yrs.	4 yrs.	No	Some	No	No	Lost	No	Yes	Yes
2 yrs.	10 yrs.	Yes	Yes	Yes	No	Yes	No	When excited	No
2 yrs.	17 yrs.	No	Yes	Yes	No	Yes	No	No	Yes
2 yrs.	2 yrs.	Yes	Somewhat	Yes	No	Yes	No	At times	No
2 yrs.	7 yrs.	No	Yes	Not much	No	Yes	No	Slight	No
3 yrs.	1 yr.	Yes	Yes	Yes	Yes	Yes	No	No	No
3 yrs.	3 yrs.	Yes	No	No	...	No	...	Yes	Yes
6 yrs.	3 mos.	Yes	Fair	Yes	No	Same	No	Slight	No

SUMMARY—11 Cases

10 show improvement in health
1 shows no improvement
8 can do ordinary work
4 are unable to do ordinary work

8 show gain in weight
4 show no gain in weight or remain the same
6 show nervous symptoms
4 show rapid heart

to any infection demonstrable at post mortem and they may have been due to some parathyroid damages.

Prognosis.—The prognosis in patients with hyperthyroidism varies with the severity and duration of the symptoms. There are, of course, exceptional cases in which the patient is overwhelmed by the toxicosis and these have a lasting damage very early. As a general rule, however, those with permanent damages to the heart and nervous symptoms have had a thyrotoxic goiter for some years.

A questionnaire, the results of which follow, shows that cardiac damage when it has once developed is a lasting feature of the disease. This is especially seen in the primary hyperplastic goiter and in severe toxic adenomatous goiters. Fatigue is also shown to be present by the inability of most of the patients to do more than ordinary work. Nervousness, while not as pro-

nounced in later years, invariably appears following excitement.

It would seem that patients are permanently damaged by thyrotoxicosis and that operation greatly benefits them, but does not permanently cure unless it is done very early in the disease.

CONCLUSIONS

1. A study of the cases reported would indicate that the symptoms of hyperthyroidism are found in primary hyperplastic goiter, in adenomatous goiter with hypertrophy and hyperplasia, and in certain colloid goiters.

2. When the symptoms of hyperthyroidism are severe it is often difficult to distinguish clinically the pathological type of goiter present.

3. The incidence of hyperthyroidism in adenomatous goiter in our series was most frequent during the ages of twenty-one to forty years.

4. Adenomatous change may occur in goiter

which was originally of the primary hyperplastic type, and may be a factor in causing a recurrence of the hyperthyroid symptoms.

5. The response to the use of iodine is similar in adenomatous and primary hyperplastic goiters and this factor raises a question as to their pathological difference.

6. The use of iodine, while beneficial causes an abeyance of hyperthyroid symptoms and does not result in cure. The improvement is temporary, and more apparent than real. The use of iodine should not replace the more safe and conservative polar ligations in severely toxic cases.

7. The early recognition of hyperthyroid symptoms with appropriate preoperative and postoperative treatment will further decrease the operative mortality of thyroidectomy and prevent permanent damages to the nervous and vascular system of the patient.

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I wish to thank Dr. Carl B. Davis for use of his material and observation of his patients, the greater portion having come from his service.

DIATHERMY AS EMPLOYED IN SOME UROLOGIC INSTANCES*

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Unrestricted enthusiasm resulted in an overestimation of the possibilities of this method and produced also some misunderstanding of its therapeutic value and action. This is especially true in the recommendation of diathermy for the treatment of acute gonorrheal urethritis in the male. The assumption was broadcasted that by the application of high frequency currents it should be possible to develop a degree of heat within the penis, that would kill the gonococci without damaging the urethral and periurethral

structures. A priori exceptions against this contention may be raised.

Years ago, arguing from the same point of view, hot irrigations of the urethra for the same purpose were suggested and tried. Although the degree of heat in this irrigation was carried to the limit of endurance no success was obtained.

The contention that diathermic heat is produced within the tissues and, therefore, is more effective does not stand up under the conditions extant.

The urethral mucosa and the underlying strata are not thick enough to prevent the penetration of superficially applied heat. Furthermore, controlling experiments conducted with the aim of testing the assumed hypersensitiveness towards heat of the gonococci furnished contrary evidence.

Pure cultures of gonococci exposed in vitro to heat exceeding by some degrees the heat permissible of application in living structures without destroying them, in the majority of instances proved to remain viable. Speaking in a general way the direct destruction of pathogenic germs within living structures by physical or chemical means is a problem that still awaits solution. As a matter of fact, the administration of medical diathermy in cases of acute gonorrheal urethritis failed to produce convincing results. While the application of electrodes to the penis may not be efficacious it is at least harmless. But the introduction of an electrode into the acutely inflamed urethra is not only very painful, but also apt to produce severe periurethritis and cavernitis with all its sequelae.

In acute gonorrheal epididymitis and in acute prostatitis medical diathermy will in most instances furnish subjective relief and in some instances produce acceleration of absorption.

But if multiple suppurative foci are established within the epididymis, diathermy obviously cannot be of much value, and exposure of the organ and proper drainage of the infiltrated and suppurating areas has to be employed.

A condition of this kind manifests itself by extensive edema and attachment of the scrotum to the inflammatory tumor, excessive sensitiveness to the touch of the involved areas; high temperature and chills. Especially in treating epididymitis one has to emancipate one's self of

*Read before the meeting of the South Side Branch of the Chicago Medical Society. February 10, 1928.

the idea that excessive heating is proportionate with the therapeutic success. Neither the immediate nor the remote results warrant such an assumption. It is well known that if the heating is carried to the limit of tolerance, though coagulation of the tissues will not yet occur, the globulines will be precipitated, which event impairs the vitalistic capacity of the cells involved. This not only concerns the intermediate cells of the testicle, but will also impair a very important therapeutic factor, the functional activity of the cells pertaining to the reticulo-endothelial system, in which the defensive forces of the body reside.

The well known efficiency of the aseptic protein-shock in acute epididymitis and prostatitis suggests that it always should be employed simultaneously with diathermy. This co-operative administration is in harmony with our theoretical conceptions.

The injection of proteins is known to stimulate the storing capacities of the reticulo-endothelial system, at the same time the heating of the aforesaid locality leads to immigration of these cells into the afflicted area and also to the production of those in loco. The most effective protein applications are the intro-muscular injection of milk, or the intravenous infusion of a few minims of a polyvalent vaccine.

In chronic prostatitis and vesiculitis the administration of medical diathermy may be considered an indispensable part of our therapeutic efforts.

Here again the production of excessive heat should be avoided, but prolonged treatments are essential. The individual tolerance of the rectum varies considerably, and quite often it is impossible to continue the initial treatments for the desirable length of time, that is from 30 minutes to one hour. The rectal tolerance rises with each subsequent treatment. At the same time it is desirable to relieve the discomfort of the patient. The rectum has to be cleansed before introducing the active electrode. This cleansing is best achieved by an oil enema. In very nervous patients it is advantageous to tone down their irritability by the oral administration of codein. The signal for interrupting the diathermic treatment at each instance is the patient's perception

of disagreeable or even painful spasms in the prostatic and vesicular region.

It would, however, be erroneous to rely entirely on diathermy in the treatment of chronic prostatitis and vesiculitis.

Prostate and vesicles at regular intervals have to be relieved by massage of their accumulated contents, and concomitative protein shock has to be used.

The choice of the protein to be injected is controlled by the consideration of the cardiac conditions. Cardiac disturbances will contraindicate the use of milk or vaccines on account of the unavoidably severe general reaction. In such instances casein compounds or the patient's own blood are employed for intradermal or intramuscular injection respectively.

In pronouncedly benign excrescences of the vesical mucosa the cystoscopic destruction by the high frequency current is generally accepted. In malignant vesical tumors the electrocoagulation of the growth after cystotomy should be the method of choice. The reasons for this are manifold. Technically the electrocoagulation is a much simpler procedure than the extirpation by the knife. The primary mortality is decidedly lower, and it does not result in a reduction of the vesical capacity as the bloody extirpation necessarily produces. It may be stated in conformity with the opinion of all the other operators practicing electrocoagulation, that its remote results surpass by far those accomplished by the use of the knife. Quite a few experienced surgeons became so discouraged with the failures of the bloody operation that they entirely discarded surgical intervention in malignant bladder tumors. Electrocoagulation permits without any difficulty its repetition in case of recurrence, and we have on our records four cases in which the repetition of electrocoagulation furnished clinical cures of respectively seven, five, three and one years' standing.

Even if no cure may be obtained electrocoagulation in apparently hopeless cases give satisfactory palliative results.

It may be safely stated that though not an ideal method, electrocoagulation of malignant bladder tumors is at the present time the best we have to offer in such instances.

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URGING MORE RADICALISM IN SURGERY OF SO-CALLED BENIGN ADENOMA OF THE THYROID*

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Goiter has been classified as adolescent (or physiologic) colloid, adenomatous (either simple or toxic) and exophthalmic.

Surgeons who are concentrating particularly upon goiter are practically unanimous that all thyroid tumors, in the adult, should be removed. It has been my observation that this view is not equally endorsed by the general surgeon and internist or general practitioner. I believe that the majority agree that colloids, toxic adenomas and exophthalmics are surgical, but a great difference of opinion still prevails concerning the so-called adenoma. My aim is to point out that all goiters are more than mere potentialities for harm and should be operated upon regardless of type.

A great deal of evidence has been accumulated that practically proves that all goiters are of the same type and that their clinical manifestations are merely differences in type of development. Boothby¹ and Coller² point out that adenomatous patients developing hyperthyroidism show a percentage increasing from about 10% in the third decade to 32% in the fifth and sixth decades of life; that it cannot be predicted at what age a goiter may become toxic and that at any rate it has one chance out of three of becoming so before the patient becomes sixty years of age.

The existence of goiter as a cause of cardiovascular injury is well recognized. Plummer³ has shown that hypertension was noticeably present in patients with adenoma as compared with others of like age. Willius⁴ estimates that 9% of exophthalmic goiter and 70% of adenomatous goiter show auricular fibrillation.

Coller⁵ in an analysis of a group of adenomatous goiter patients with normal metabolic rate found that with each decade of life these patients showed definite cardiac damage greater than that present in other groups of like age, but without goiter. The incidence of damage was progressive with age; 4% showing auricular

fibrillation in the fifth decade and 30% in the sixth. The pulse was under 80 in 46% during the third decade and only 20% in the sixth decade showed a like rate. Cardiac hypertrophy was present in 18% of the cases in the third decade and in 50% in the sixth decade. This he believes is due to the long standing low grade thyrotoxicosis which is not of sufficient severity at any time to form a clinical picture, and yet of sufficient severity and duration to cause irreparable damage. He believes that adenomas should at least be placed on a parity with syphilis and rheumatism as an etiological factor of cardiac dysfunction. Lahey describes a distinct clinical group which he calls thyro-cardio-vasculars. Elliott⁶ concurs in this and states that five years ago we were prone to call them hopeless cardio-renals and that now a great many of these are returned to lives of usefulness by surgery. This group is really the so-called nodular goiter with the familiar long drawn out history of exacerbation and remission.

Charles Mayo states that over 80% of cancer of the thyroid arises in adenoma. Crotti⁷ sets the figure at 90%, Herbst⁸ of the Mayo Clinic states that he has never seen malignancy in the exophthalmic type (and believes that this source is negligible). Kocher¹⁰ reports 9% of cancer in a series of 3,500 cases. Warthin¹¹ found 4.4% malignancy in all types without definitely stating what proportion of this group were exophthalmic. In summing up various statistics, about 3% of adenomas become malignant and thus present a potent argument for the early removal of all adenomas.

Pressure symptoms are frequently responsible for the patients seeking relief. Lahey writes that any goiter showing a tendency to become substernal is cause for its removal and suggests that removal of even a substernal goiter may be accomplished, but the necessity of such a procedure could easily be avoided by early removal of cysts and adenomas.

All of us are familiar with the occurrence of certain psychic disturbances in exophthalmic goiter and in toxic adenomas and have seen these disturbances disappear after the removal of the goiter. These marked aberrations are not so common in the adenoma, but many cases of hysteria or neurasthenia doubtless owe their existence to the low grade intoxication of an adenoma.

*Read before the Section on Surgery, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

Anatomically the so-called "non-toxic adenoma" presents an irregularly lobulated surface. The size of these lobules depends upon the age of the goiter. Recent goiters have fewer and smaller lobulations than older ones, and their cut surfaces show them to be of various size and irregular distribution. Some of these lobules will appear firm while others will be quite cystic, being either filled with fluid or colloid material. Some areas of the gland are often entirely normal in appearance. The connective tissue between these lobules seems to bear a direct relation to the age of the goiter. It is much more dense in the older ones, often being so firm as to form a distinct capsule. Careful inspection, however, will reveal that the disease process is not limited to a particular area, but is diffused throughout the gland, thus differing from a true tumor.

Histologically the cells lining the larger acini are flat, resembling endothelium, and the acini are filled with colloid. The smaller acini are apt to have a cuboid type of epithelial lining. In the resting gland one finds few interstitial cells. The toxic goiter is characterized by acini having a lining of columnar cells. There is a greater abundance of blood vessels and less of connective tissue, and also greater proliferation of parenchyma cells and often the acini are filled with cells instead of colloid. There may be papillomatous-like infoldings of the epithelium into the lumen of the acini. The interstitial spaces likewise appear to be filled with newly formed epithelial cells.

The true exophthalmic goiter, most often found in the younger patients, is smooth and presents only the normal lobulations. Histologically there is a marked hypertrophy and hyperplasia of parenchyma cells, and an increase of vascular structures, but the number of acini appear not to be above normal. In some glands the fetal type occurs and the acini are packed with cells. There is little or no colloid in the acini and often the interlobular spaces are packed with epithelial cells.

Histologically there is not much difference between the functional hyperplasia of the thyroid gland and the exophthalmic type, because here we find the epithelial and vascular structures increased. It is my belief that when the hyperplastic thyroid involutes we get the formation of acini filled with colloid and lined with endo-

thelial cells, or the picture of the colloid. At some future time this gland undergoes hyperplasia and hypertrophy and the patient presents a clinical outburst of thyrotoxicosis, the degree of this depends upon the amount and the rapidity of the onset. If this occurs in a short time and in a young individual we have an exophthalmic. If it is less abrupt, we may call it a toxic adenoma, and if it is still more gradual the symptoms may be so mild as to not form a clinical entity, and so escape detection. The gland then undergoes regression and more nodules are formed and it becomes a "benign adenoma." Suppose, then, that the patient becomes pregnant, sustains some infection, or some psychic shock and her goiter enlarges. This gland shows the histological picture of a toxic adenoma, with colloid filled acini, which are lined with cuboid or columnar epithelium and there may be many parenchymal cells outside the acini. If involution of this gland now occurs we have more nodes formed and so on. The patient finally succumbs to hypertension or cardio-vascular disease.

Lewis¹³ and Rienhoff¹³ of Johns Hopkins report an interesting study of the effect of iodine on the anatomic structure of the exophthalmic or toxic goiter. By excising portions of the gland at different stages during treatment, they demonstrated that during the detoxication of the patient the gland underwent involution. These glands when completely iodized differed microscopically in no way from the non-toxic adenoma or colloid. Specimens removed before the use of iodine showed marked hypertrophy and hyperplasia in all instances. They were able to demonstrate that a perfectly smooth enlargement of the thyroid gland (due to hypertrophy and hyperplasia of the parenchyma and associated with the clinical symptoms of exophthalmic goiter) can be converted into a nodular goiter during the course of involution, by the administration of iodine. In a review of 1,019 operative cases they were convinced of the diphasic character of the disease, viz., hypertrophy and hyperplasia followed by involution. They believe that the number and size of the nodules depend upon the number of remissions and exacerbations in that gland. They suggest that very likely similar cycles occur in the breast and ovary. Clinical histories extended over a long period of years. The size of the nodules

varied greatly and as a rule were largest and most numerous in the older cases and these often presented well defined capsules. These cases, clinically and pathologically, seemed to represent a chronic manifestation of the same disease process which occurs more acutely in the exophthalmic goiter. Many observers are of the opinion that any nodule with a capsule around it represents a neoplasm, and therefore is an adenoma. Lewis¹² and Rienhoff¹³ are convinced that this is erroneous and reiterate again that the nodules are due to recurring disease cycles. Further they found that every toxic case presented areas of hyperplasia and hypertrophy regardless of the other findings and this hyperplasia and hypertrophy was exactly like that in exophthalmic goiter.

Hertzler¹⁴ states that in an attempt to correlate laboratory observations with the life histories of patients among whom he has lived for a generation, it has become more and more apparent that goiter disease is not a series of separate conditions, but a process of gradual progression. One can foretell the sequence of these changes with as much accuracy as one anticipates the various stages of other diseases, for example, typhoid fever or syphilis. His study is based on 1,000 cases in which case histories, specimens, slides and postoperative observations are correlated in a most noteworthy and painstaking manner.

Hertzler¹⁴ concludes that all goiters are a continuous and progressive disease process characterized by exacerbations and regressions, in which the clinical manifestations exactly agree with the anatomic findings. A careful search will *always* reveal evidence of new gland formation in the colloid type. Clinically we can *always* get a history of metabolic disturbance accompanied by increased pulse rate and other signs of toxicity. The next stage is the formation of lobules, or tumors. These are not true adenomas because they do not begin to grow from one central point. On the contrary, the whole gland takes part in the disturbance. The toxic state is always characterized by an increase of cell proliferation and the exophthalmic goiter differs from the toxic adenoma only in degree and rapidity of development.

I have long been convinced of the progressive character of the so-called adenoma, having observed the clinical variations and noted that the

anatomic picture varied in direct ratio to the clinical toxicity, unless influenced by iodine (in which case it more nearly resembled the colloid). We all admit that iodine does not influence the colloid or benign adenoma, but that in practically all cases of so-called toxic adenoma, relief can be obtained by sufficient iodization. This agrees with Rienhoff's observations. It is my belief that the iodine causes an involution of the hyperplastic portions of the toxic adenoma and thus returns it to the resting stage. Furthermore we all are agreed that this relief is transient after the establishment of a nodular goiter and that the only time iodine alone is indicated is in the smooth goiter. This is probably not so much dependent on the age of the patient as it is upon the age of the goiter. Iodization of a nodular goiter should only be used as a preliminary to surgery.

Nowadays patients seek earlier relief, and furthermore, surgeons do not permit the development of exophthalmos. However, those whose experience carries them back far enough will remember the marked exophthalmos that often accompanied their toxic adenomas. Of late years it is rare to see one of these, yet I have in mind a case that came to me in the past year. A woman, aged 29, had had a nodular goiter for seven or eight years. She presented all the classical symptoms of an exophthalmic. Pulse of 160, exophthalmos, tremor, emaciation, digestive disturbance, etc. She responded to Lugol's solution. The thyroid gland was nodular, almost the size of a man's fist, and contained many encapsulated areas. One of these showed a beginning malignancy, which was treated by radium. Postoperatively she has made a wonderful recovery. Her weight has been regained. Her pulse has returned to normal and there has been no evidence of malignant recurrence to date. The eyes show some remaining exophthalmos. How much easier it would have been to remove this goiter five years ago, before she developed eye signs. How much anxiety she would have saved the surgeon and her friends. Instead of a year's critical illness the whole period of disability would not have been a month, let alone the possibility of a return of her adenocarcinoma. This patient, who was in the third decade, was more fortunate than many others in the fifth and sixth decades, because in my experience not all these hearts return to normal,

or if they do a long time is required. This bears out the general experience that younger patients have a much better chance to recover than older ones. Case histories invariably reveal that the older patient has had her goiter many years, the average being about sixteen. Practically all of these patients have had all sorts of internal and external medication. They finally seek surgery as a last resort, too late to get perfect relief, but still witness to the fact that goiter is a surgical problem.

It is the duty of the surgeon to educate the public as well as his professional colleagues along the line of prophylactic measures. The evidence at hand is quite sufficient to prove that goiter is not a trivial disease, but that it is practically always progressive. There is no such entity as an innocent goiter. Any nodulation of the thyroid gland represents a dystrophy and so-called benign adenomas are merely the temporary resting stage. There is no surgical mortality from the removal of this type of gland and hence it is the ideal time for surgical intervention. Hertzler¹⁴ says: "The fact that goiters may require generations for their development and cancers only years, does not alter the gravity of the problem, and medical treatment in all but the early stages is as deadly as medical treatment for cancer. The analogy is not so apparent, because the goiterous process is more insidious and kills without revealing the error of the inadequate treatment. Patients who thirty years ago had innocent goiters have all died of cardiac failure."

SUMMARY

1. Any nodular enlargement of the thyroid gland constitutes a surgical problem, because goiter is a progressive disease both clinically and anatomically.

2. Toxic adenomas and exophthalmic goiters are only different clinical aspects of the same disease, the difference being only in rapidity and severity of development. A benign adenoma is merely the resting stage.

3. Goiter is on a par with syphilis and rheumatism as a factor in heart disease.

4. Goiter is a frequent cause of hypertension.

5. In at least three per cent. we find malignancy.

6. Many mental and neurotic symptoms base their etiology on thyroid dyscrasias.

7. Pressure symptoms are avoided by early removal.

8. Exophthalmos is prevented by prompt surgery.

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DISCUSSION

Dr. H. P. Miller, Rock Island: I would like to ask Dr. Dreyer if he has used iodine for two or three months postoperatively in his primary hyperthyroidism cases. Along with the experimental work on the gland, I think this same man Dr. Dreyer mentions has said that there would be less chance of recurrent hypertrophy if iodine were administered three months postoperatively.

Dr. J. W. Dreyer, Aurora (closing this discussion): I said that every nodular enlargement of the thyroid gland is a surgical problem. Of course I recognize that we have physiological hypertrophies but I do think that the surgeon is really the man most competent to watch the surgical development. I do say that any nodular enlargement of the thyroid should be removed. I am possibly very radical and in my own town I am opposed by many men. At our hospital we had a nurse at whom everybody has a shot with Lugol's, iodine and x-ray. I kept insisting that it was a surgical problem. She had three flare-ups in a year. One and one-half years ago I operated on her and she has gotten on well. She is a girl in the early twenties.

I give iodine postoperatively for the first six months and sometimes for a longer period of time. I start them out on a pretty heavy dosage the day of operation and after. I think iodine acts the same in all types of hyperplasia in the gland. The tumor that the Doctor mentioned may have been one of the toxic adenomas with carcinoma. I do not deny that it is possible for carcinoma to develop in toxic goiter. Herbst⁹ at the Mayo Clinic has never seen it develop in exophthalmic goiter. As a rule exophthalmic goiter occurs in young individuals. Lots of times it undergoes recrudescence only to return in five or ten years and when it returns we have a nodular goiter. Lewis and Reinhoff were the first

in the United States to call attention to this. This is not my original thought but Dean Lewis pointed it out. I think the men in the smaller communities where we have to live with these people have more chance to follow them up. We see a girl of eighteen or nineteen with an adolescent goiter and in her twenties when she has her first baby she has another enlargement. Then along about twenty-five she comes in with a marked enlargement of the thyroid, marked tremor and hysteria. She is never quite up to normal. That shows the progress of the majority of these tumors. When you take out these nodular goiters they are cured.

MIGRAINE OR SICK HEADACHE*

A SENSORY DISTURBANCE DUE TO PROTEIN SENSITIZATION OR IDIOSYNCRASY

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The term migraine or sick headache is applied to a combination of symptoms of which the headache is only a part. There are frequently premonitory symptoms by which the patient knows an attack impends. Among these are flashes of light and other disturbances of vision. Dizziness occurs in some cases. Palpitation of the heart at times precedes the attack and in some cases even seems to substitute for the headache. Some patients are greatly depressed and some are very irritable before the attack begins. The headache, as a rule, follows a short time after the premonitory symptoms appear. The pain usually begins in a small spot, more or less constant in location for each patient. It may be on the forehead, the temple or the eyebrows. It is usually confined to one side of the head, but may be frontal or invade both sides. The pain spreads gradually until it reaches the neck when the nausea usually begins. The pain may be severe or mild and the nausea likewise. There is much prostration, in fact, few affections are more prostrating. During the attack the patient may not be able to raise the head from the pillow. Noise or light aggravates the condition. The duration of the attack is variable, but is usually constant in the individual. The disease recurs for years, but in some cases ceases to trouble so much after fifty years of age. Severe cases may persist throughout life.

The usual medical treatment of migraine has

been entirely unsatisfactory, except that more or less relief of the acute attack was usually possible. In the past all treatments designed to prevent attacks failed in the majority of cases. In the light of the probable anaphylactic basis of the condition it seems possible that when the treatments did seem to help it was because the case was not true migraine.

In advancing allergy or protein sensitization as a cause of migraine I do not wish to be understood as claiming that all "sick headaches" are allergic. Certainly many cases diagnosed as migraine have been relieved by the oculist's skill. Some have found relief after nasal or other operations; some by attention to the gastro-intestinal tract. In the operative cases and the gastro-intestinal cases it is probable that some were allergic reactions from bacterial or other foreign proteins.

After all these cases are eliminated from consideration there remains much the greater number of cases that are not relieved. These cases are, I believe, mostly if not entirely due to food sensitizations.

In the consideration of cases as possibly anaphylactic, an earnest effort was made to eliminate all but true migraine. Not all headaches accompanied by nausea are migraine. The so-called "Bilious headache" is an example. Pituitary headache and the headache at menstrual period, which is probably often a pituitary disturbance, are often mistaken for migraine. These were eliminated.

It is now conceded by medical men that asthma, hay fever and urticaria are due to protein sensitization or allergy. In these diseases we find a definite hereditary tendency, not always to the same disease, but to some one or more of the group. In taking the family history of patients suffering with asthma, hay fever, or urticaria I have found a remarkably frequent history of migraine in some one or more members of the family. Likewise in taking a family history of migraine cases I have found an equally frequent history of some of the well recognized allergic diseases. In each condition a positive family history of allergy can be found in about fifty per cent. of the cases.

Migraine, like asthma, is paroxysmal in type. It frequently recurs with great regularity, often coming on the same day of the week. Patients

*Read before the Illinois Academy of Science at Joliet, Illinois, April 29, 1927.

find that much the same factors predispose to an attack, viz., emotion, fatigue, loss of sleep, etc.

French medical authors have led in the claim that migraine is an anaphylactic disturbance. They have reported some success in treatment by giving peptone by mouth for its non-specific effects. In many cases it is successful, but must be given continuously in most cases. When stopped, the old condition recurs rather quickly. J. L. Miller and others in this country have reported some success by the hypodermic use of peptone. It frequently fails and practically all patients relapse soon after stopping treatment.

Results of Protein Sensitization Tests.—Additional evidence for the anaphylactic basis is furnished by protein sensitization tests and the results found by acting on the information gained by that means. I have found that a careful testing of cases almost always gives a reaction to some food substance. At times multiple reactions are had, sometimes single. The reactions are not so well marked as in other allergic disturbances and are frequently different in appearance from the ordinary reaction as generally accepted. This is, I believe, the reason why others who have made these tests have not had success.

Finding substances to which the patient reacts does not, of course, prove that they are the cause of the headache. They may be the cause of some other disturbance of which the patient makes no complaint. However, if we eliminate the foods from the diet entirely and the headaches fail to appear as usual we can begin to suspect that we have found the cause. After a sufficient period of time I advise patients to resume eating the food or foods. Usually this brings on an attack rather quickly. If so, the foods are again eliminated. As a rule the attacks stop again. In case of multiple reactions an attempt is made to find which one is really the cause of the attack.

During the last three years I have had quite a large number of cases which I have tested out more or less completely and have had opportunity to follow up for final results. The results have been so very good that I believe all severe cases should have the tests made to discover the cause if possible. In addition to my own work I have had a verbal report from another specialist in allergic diseases that he has had results comparable to mine.

To illustrate the wide variety of foods causing the trouble I will cite a few typical cases.

Case 1. W. B., male, aged 54 years.

Family History: Mother had some asthma in later life. One sister had attacks of asthma or migraine, one substituting for the other. One period of several years elapsed without asthma, but with regular migraine attacks, followed by a period of one and a half years of asthma, without migraine. As a rule the attacks more or less alternated. Another sister had very frequent attacks of migraine.

Patient's earliest recollection was of having headaches often. For the last twenty years attacks were regular and weekly, usually on Sunday, lasting for either twelve or eighteen hours. Frequently attacks came on during the week. Tests showed only a slight reaction to wheat. The complete elimination of wheat resulted in stopping all attacks for a period of seven weeks. A break in the diet at that time caused a mild attack. A resumption of the diet gave four weeks of relief; then another mild attack after eating a small amount of food containing wheat. After a further period of about a month a full diet of wheat was advised with a quickly following headache. A desensitization was attempted but never fully carried out. At present the patient reports he only has attacks when he indulges in too much wheat.

Case 2. A. E., male, aged 27 years.

Family History: Father had asthma.

Patient began to have migraine at about sixteen years of age. At first attacks were only once or twice a year; now more frequently, once a month or so, but irregular in time. Pain was so severe that patient said if he did not get relief he did not care to live. Attacks lasted one to three hours. Tests showed a slight reaction to onions. Elimination of onions from diet seems to have permanently stopped the attacks.

Case 3. S. M., female, aged 18 years. No family history of allergy. She had headaches for last two years which she believed were caused by milk, cream or butter. Attacks began one to three hours after eating. Formerly she had daily headaches which were relieved by glasses. Sick headaches lasted for a variable time. Tests were all negative except "suspicious" to wheat and positive to tuna fish. Patient was advised to eliminate tuna fish from the diet. She returned in about three months and stated that she had tried eating tuna fish and that each time she promptly had an attack. No attacks had occurred except when she had eaten the fish.

Case 4. Mrs. P. H., aged 51 years. Family history negative. Attacks began when thirteen years of age and at that time were almost daily. More recently attacks were variable in occurrence but from one to three times a week. Tests showed a sensitization to egg and veal. Elimination of these stopped all attacks for five weeks and then an egg was eaten. An attack promptly followed. She has had no further attacks unless eggs are eaten in some form.

Case 5. Female, aged 30 years. Sister has hay fever. Patient also has fall hay fever. Has had

migraine only last few months. Attacks come on one to three times per week and are very severe, with profuse vomiting. Tests showed ragweed as a cause of the hay fever and also a sensitization to olives. Elimination of olives stopped all headaches.

CONCLUSIONS

Migraine occurs sufficiently often in the family history of patients suffering from diseases of known allergic origin to make it probable that there is an allergic basis for the condition.

Protein tests in migraine cases shows in a majority a reaction indicating a sensitization to some food substance, the withdrawal of which from the diet stops further attacks.

Medical treatment directed towards prevention of attacks of migraine has so generally failed and the conditions interferes so much with the patient's welfare that any means which promises relief should be tried.

Migraine treated as an allergic disease gives results so generally good that physicians are urged to cease saying that nothing can be done and to adopt this method in order that they may bring relief to their patients.

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COMMON INJURIES TO THE FINGER TIPS AND THEIR CARE

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Injuries to the finger tips are so common and as a rule so inconsequential that only slight attention has been directed to the possible unfavorable results that may follow apparently simple injuries.

While it is customary to consider finger injuries in terms of the tissues involved, it appears desirable to make a distinction between that portion of the finger distal to the terminal joint and the remaining proximal portion. The terminal segment differs so markedly from the proximal segments that the routine care for injuries to the fingers in general does not apply with equal effectiveness to the terminal segment. One who has to care for minor injuries as they occur in industrial accidents knows well enough that injuries to the finger tips are far more painful, more difficult to manage and more disabling in point of time before healing takes place than similar injuries to the other segments of the fingers. It is at times surprising that what ap-

pears to be so trivial an injury will result in such prolonged disability.

Anatomy. The skin on the palmar surface of the finger tip is more intimately attached to the subcutaneous fat than it is elsewhere. This subcutaneous fat or pulp lies in a closed trabeculated connective tissue sac limited proximally by its attachment in the region of the insertion of the flexor profundus tendon and distally to the margin of the spongy portion of the terminal phalanx. The periosteum of this ungual tuberosity is intimately attached to the cortex. The blood vessels to the diaphysis run parallel to its lateral border and enter the bone through foramina on the flexor surface. The vessels are enclosed in the fascial space surrounding the terminal phalanx.

The nail arises from the germinative portion of the epidermis—the hyponychium and is attached to the terminal phalanx by fibers which are intimately united with the periosteum. The under surface of the nail is fixed to the skin by parallel ridges extending peripherally.

This brief review illustrates the compactness of the finger tip. This has considerable bearing on the pathology which arises following simple injuries.

Infections. Infections of the skin and sub-jacent fat of the finger tips differ somewhat from similar infections elsewhere in that pain is much more pronounced a symptom. The massive concentration of sensory nerve end organs especially in the tactile portions of the thumb, index and middle fingers in addition to the compactness of the structure whose tissues are not disposed to swell assists in the production of the intense throbbing pain and occasions a great deal of discomfort.

While it is customary to advise the use of hot moist applications for acute infections of the skin in other locations and expect alleviation of pain with either subsidence of the inflammatory process or progression to pus formation, such treatment should not be suggested for similar acute infections of the finger tips. Here the active dilation of the supplying arteries associated with the edema and exudation which follows tends to increase the tension in the tip and produce a compression occlusion of the terminal vessels. This results in a massive necrosis of the fatty pad on the palmar surface and in many instances

necrosis of the spongy portion of the terminal phalanx. Pain and throbbing may now become unbearable and no relief can be obtained until this necrotic plug is extruded or otherwise removed.

In many instances this unfortunate circumstance can be avoided by the early application of alcohol and glycerin (aa) dressings with instructions to elevate the extremity and maintain absolute rest. The application of dry heat is permitted only if relief is obtained by so doing. Subsidence of the pain and throbbing usually occurs within a comparatively short time under such treatment. When localization of pus occurs incision through the thick skin is preferable to the use of moist heat to soften the skin in order that natural drainage may occur. Drainage material here as in many other locations is useless as it acts more as a plug to retain secretions than as a drain.

Infections about the nail are designated paronychia. The subcutaneous variety arises from infections which usually begin in hang nails or are introduced during a nonsterile manicure. The tissues become swollen and boggy without pus formation. These do well when put at rest with an alcohol and glycerin dressing repeated twice daily. This simple procedure is usually followed in a few days by subsidence of the acute inflammatory reaction with regression of the infective process. The customary use of hot moist dressings favors the formation of necrotic material which becomes infected and necessitates evacuation by surgical drainage. In connection with this form of paronychia it is noteworthy that Bier's passive hyperemia is a great aid in the regression of the inflammatory process. Circular compression over the proximal phalanx for a few moments at frequent intervals is a simple procedure which offers relief of pain with early subsidence of the inflammatory process.

When treatment as described above has not been instituted early enough or when through maltreatment the inflammatory process has progressed to pus formation, incision over the abscess becomes necessary with removal of that portion of the nail which has become loosened from its bed. Excessive and continuous drainage is prolonged in these cases by the failure to

remove completely the loose portions of nail in the wound.

Infection of the periosteum and bone occur together in the terminal phalanx because both are intimately attached to each other. These infections may arise 1. by extension of an infective process from without as in contaminated compound fractures or infections of the skin and subcutaneous structures; 2. through emboli in the blood stream and 3. as a result of necrosis due to occlusion of the blood supply.

Excessive swelling of the finger tip during an infection, or increase in tension following hemorrhage consequent to simple fractures of the phalanx may result in occlusion of the nutrient vessels to the diaphysis with resultant necrosis. This is usually designated—"bone felon." In many instances a draining sinus develops following such an occurrence and separation of the necrotic material with extrusion of the sequestrum results in healing of the wound. If the periosteum has not been curetted from the wound following necrosis, regeneration of the terminal phalanx may occur.

Lacerations. Lacerations about the finger tips usually heal readily but too energetic care not guided by the pathology present may lead to undesirable results. When too many sutures are inserted to close the wound or when the wound is sealed too tightly by adhesive (as some surgeons prefer) no provision is made for the escape of the wound juices which accumulate. This produces an increase in tension with compression of the vessels and necrosis is a not uncommon sequel. In most instances an open wound of the terminal segment will heal more readily than the wound which has been neatly approximated and closed by too many sutures.

Amputations in the terminal segment are in many instances unnecessary but in those cases where amputations have been done difficulties are often due to mutilation of the germinative portion of the nail bed or sloughing of the flap used in closing the wound. The latter is not uncommon when excessive suture material is used or when the approximation is too firm. An open wound permitted to granulate over will heal with less disability and loss of time than one with an ill nourished or traumatized flap.

Fractures. Fractures of the finger tips may be simple or compound. As many simple frac-

tures result in subungual hematomas which are drained it is safe to say that most fractures of the finger tips are either compound at the beginning or are made compound soon thereafter. The compound fracture is the more favorable type of fracture for healing provided no infection takes place. With provision made for the escape of wound juices there is less chance for increase in tension than in the simple type of fracture. In the latter case hemorrhage and edema increase the pressure in the closed space and shut off the blood supply to the diaphysis. Late necrosis may now occur and change what appeared to be a very simple fracture into an extensive osteomyelitis due to embolic infection of the necrotic tissue. While it is common knowledge that liberation of the hematoma under the nail often results in alleviation of pain with a healing of the wound, it is not so well known that in those cases where no hemorrhage is visible necrosis may follow unless free exit of accumulated blood may be had. When pain, tenderness and throbbing persist in a simple fracture, an alligator incision under sterile conditions and gas anesthesia down to the site of the fracture is all that is necessary for the provision of circumstances favorable to early healing.

When hemorrhage has occurred beneath the nail an opening may be made with a sharp sterile knife introduced parallel to the nail surface and carried to the periphery. The application of an antiseptic sterile bandage with any sort of immobilizing apparatus covering only the distal joint is all that is now necessary. When infection has occurred and osteomyelitis is present a draining wound which may last for several weeks results and it will only close following extrusion of the sequestrum.

General. In any type of injury efforts should be made to keep the parts dry in order to avoid a fertile ground for infection. The presence of fissures, cracks and infected material under the free margin of the nail makes this part of the body a difficult place to render sterile.

Evulsion of the nail is a painful procedure and should be done under anesthesia when removal becomes a necessity. Sterile vaseline dressings for several days followed by an antiseptic powder is a favorable method of after care.

SUMMARY

Attention is directed to the need for special

care in the treatment of injuries to the finger tips. The use of alcohol and glycerin (aa) as an application instead of the customary hot moist dressings is advocated for early acute inflammatory processes. The use of excessive suture material in closing wounds of the tip is especially decried. Every effort should be made to prevent the development of increased tension in the finger tip. This knowledge is especially necessary in the care of amputations, fractures and acute infections of this part of the human anatomy.

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RESPONSIBILITIES OF THE STAFF OF THE COMMUNITY HOSPITAL

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By "Community Hospital" is meant any hospital, the majority of whose patients come from the territory in which it is located. It may be large or small, denominational or undenominational. The germ of the hospital idea is usually planted by the foresighted medical men in the minds of the intelligent citizens of the community, and these same doctors water and cultivate this germ with tender care until, after a period of years, it blossoms into a full fledged hospital, properly equipped to care for the sick and injured of the community. The hospital usually is managed by a board of directors selected from influential citizens of the community. They are hard-headed, successful business men who are giving their time and energy without recompense, for the good of the community. They desire to help others, to lower the mortality and morbidity of their community and make it a safer and healthier place in which to live. There is an old adage: "As is the teacher, so is the school," which might well be applied to the medical staff and hospital. The staff, then, is responsible to the community for their hospital.

A hospital has several responsibilities to its community, among which may be mentioned: 1 The care of its sick and injured; 2 The education of nurses and interns to care for sick and injured; 3 The education of its community in the prevention of sickness.

The Care of the Sick. The care of the sick

and injured of the community must all be done through its physicians. Therefore, it may be stated as an axiom: The hospital has not bettered the community in which it is located unless it helps the physicians to lower the mortality and morbidity of that community. For example, if the obstetrical department renders the physicians of the community such help and instructions, and gives them such a workshop that the mother and baby mortality is much less than before their hospital was built, then that hospital has been a blessing to the community. Or, if the medical and surgical departments of the hospital are able to give such medical and surgical aid to the physicians of the community that the mortality and morbidity of that community is lower than before the hospital came, then the hospital is a blessing. But, if the mortality of that community is greater than before the hospital was built, then the hospital staff and likewise the board of directors is at fault, and that hospital is a detriment to its community. In other words, the hospital staff and, to a certain extent, the board of directors are accountable to that community for every preventable death that occurs in the hospital. Could this death have been avoided in any way? Could this patient have gone elsewhere and had service which would have saved his life? I know of no better way for the staff of a hospital to keep down the mortality rate than a careful analysis of the cause of each death and a free criticism of the diagnosis and treatment, taking as standards, the larger and better clinics having the lowest mortality.

The hospital staff should see that a modern laboratory is maintained and supervised by one of their number who is specializing in pathology, so that the necessary laboratory work will be done in a dependable manner, and the newer laboratory tests and methods be brought to the attention of the attending staff as fast as they become of practical value. An x-ray department with modern equipment is maintained and becomes a very definite department of every modern hospital; first as an aid to diagnosis, and second, as an aid to treatment. This department, in charge of a doctor who likes the work and who has had his training with a man of great experience in this specialty, and he himself making a specialty of the work, becomes an

invaluable aid to the hospital. If the hospital is not large enough to employ the full time of such a man, part time might be secured and much of the actual work of this department could be done by a well-trained technician.

The staff should be divided into departments, such as medical, surgical, obstetrical, pediatric, otological, rhinological, etc., because the knowledge of medicine has become so great that no one man can know it all. There may be certain kinds of disease such as elective brain and neurological surgery which would better be sent to other hospitals where a specialty is made of this class of work. Each staff man should be spending the major portion of his time in his specialty. He should attend the better medical meetings of his specialty and take part in the discussions. Bacon has well said: "Reading maketh a full man; conference a ready man; writing an exact man." (Bacon, *Essays of Studies*.) It is, therefore, well for the staff men to write their thoughts and experiences for the benefit of others. I never realize how little I know about a given subject until I attempt to write about it.

Frequent consultations of staff men over a puzzling case is of great benefit to the patient as well as to the consultants. If a particularly hard diagnostic problem is encountered, no stones should be left unturned until it is solved, as the excellent work, as well as the poor work, of every staff man, medical or surgical, is shared by every other staff man. Autopsies should be requested and insisted on by the staff men as many questions are answered in the postmortem room. The autopsy should be conducted by a competent pathologist, otherwise much valuable material is missed and lessons lost.

Follow Up System. Complete hospital records, an able record clerk and historian with ample room and working facilities are necessary to follow up work. This gives the doctor the mental picture of his patient as he was in the hospital and enables him to determine his line of inquiry in his follow up examination, for there is no better way for a doctor to evaluate his work than an inventory at stated intervals. Many times we think our results are much better than they are and, therefore, draw erroneous conclusions. This can almost entirely be avoided by keeping in touch with our patients. There are

various ways of doing this. A simple method is for each doctor to write his patients at regular intervals and request them to report in person if possible, and, if not, by letter, giving their present condition and their estimate of the results of operations or other treatment. This serves the purpose of not only giving the doctor the results of the former treatment, but results in an annual or semi-annual examination when other pathological conditions, or errors of metabolism, may be found and corrected, giving the patient an added lease of life. The results of the follow calls can be given the record clerk for record on the patient's history.

The second responsibility, that of educating the nurses and interns in the care of the sick, is no less a responsibility than the first. Each member of the staff is looked upon as a teacher and leader, and his example is followed far more than his teaching. The interns, resident physician, and even the nurses, are prone to adopt the attending staff men's methods of handling patients. This is where the character of the staff men is really brought out. A great opportunity is here afforded to mold and influence those who are to care for the sick and injured.

The staff may have a "Nurses Training School Committee" whose duty it is to confer with and advise the superintendent of nurses and directress of the training school regarding the curriculum of the school as well as the instructors in that curriculum.

The Education of the Community in the Prevention of Diseases and Injury. The most effective way of doing this is by the education and re-education of the physicians of the community, because they are the teachers of the people. At least once a month the staff should have a meeting open to all physicians of the community and especially to all those who are bringing patients into the hospital, and medical topics apropos to the times should be discussed.

In as far as the staff of a community hospital works with and helps the physicians of that community, just that far has that hospital benefited that community, and the hopes of its board of directors and contributors been realized. The hospital that renders the physicians of the community the greatest service, renders the community the greatest service.

4753 Broadway.

SOME UNUSUAL LESIONS OF THE GASTRO-INTESTINAL TRACT*

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Great advances have been made in the past twenty years in our knowledge of gastro-intestinal diseases. These we owe largely to the developments in x-ray diagnosis. By means of the fluoroscope and the film we are now able to visualize the interior of the entire digestive tube. The procedure, as generally practiced, is limited largely to a study of silhouettes of various parts of the gastro-intestinal tract after they are filled with an opaque substance. I wish this evening to call attention to more refined methods in the diagnosis of various lesions of the esophagus, stomach and intestines. These will enable the careful, trained worker to recognize pathologic changes which are now overlooked in routine work. I refer to the diagnosis of changes in the mucosa of the stomach and intestines, and to the discovery of early carcinoma and of small pre-cancerous lesions or growths. The methods employed will be described. About 90% of the carcinomas of the stomach seen by the roentgenologist or the clinician cannot be cured by surgery or any other means. There are several reasons for this state of affairs. First, when symptoms develop many cases are inoperable or already have metastases. Second, many patients do not consult a physician until the symptoms have been present for weeks or months. Third, patients with symptoms are not always given the benefit of thorough clinical and laboratory examination. Fourth, the small tumor without ulceration and hemorrhage, which produces no stenosis (not at the pylorus or cardia, but in so-called "silent" areas of the stomach) has rarely been diagnosed.

In the past five years I have studied about 2000 patients for gastro-intestinal lesions. Many of these were observed clinically as well as roentgenologically. I have found that with the proper technique careful fluoroscopic examination and selected photographs will yield considerable knowledge regarding the condition of the stomach mucosa, will reveal small benign or malignant growths at a stage when all other methods fail. Small diverticula of the esophagus, stomach,

*Delivered before the Chicago Medical Society, March 7, 1928. The paper was illustrated with numerous lantern slides.

and intestines are demonstrable, when one has a knowledge of their pathogenesis, favorite locations and associated pathology. Small and large hernias of the diaphragm, which escape careful examination, can be brought to light. Anomalies of form and position can be recognized with a proper knowledge of the embryologic development. Most important of all for the recognition of the unusual x-ray finding is an acquaintance with pathologic anatomy. Are not the x-ray findings merely shadows of the normal or pathologic structures. X-ray pictures never err, only the interpretations may be wrong.

ESOPHAGEAL LESIONS

The diagnosis of esophagus carcinoma is as a rule not difficult and will not be discussed here. Also dilatation of the esophagus due to cardiospasm is easily recognized when one keeps this condition in mind. It may be overlooked without getting a careful history of difficulty in swallowing. I have seen a number of advanced cases diagnosed as mediastinal tumor, enlarged heart, aneurysm, etc. Fluoroscopic examination with rotation of the patient enables the diagnosis to be made in most cases without the use of the barium meal. The sharply outlined retro-cardiac shadow tapering down to a point at the hiatus, with a horizontal fluid level at the upper end should be easy to diagnose. I shall show slides of typical cases. Cardiospasm may be associated with lesions of the esophagus, stomach or of the vagus nerve.

The lesion I wish especially to emphasize is the esophagus diverticulum, of which there are two types: 1 The pharyngo-esophageal pulsion or Zenker diverticulum. 2 The intra-thoracic traction diverticulum.

Pulsion Diverticulum. This form is seen most often in men past the age of thirty. It is situated in the posterior esophageal wall at the pharyngo-esophageal junction, rarely in other parts (epi-phrenic). There is a locus minoris resistentiae in the wall at the site of these diverticula due to the fact that large veins pass through the wall here, and also the musculature may be congenitally weak. Bolting of food with increased pressure from the pump-like action of the pharynx produces a small pouch which slowly grows larger and larger. It may reach the size of a large apple, with a capacity of 200 to 500 c.c. Then a tumor mass appears in the neck,

usually on the left side in the supraclavicular fossa. It is removable by pressure or change of position of the head. The symptoms are cramps in the pharynx, difficulty in swallowing due to compression of the esophagus, sometimes dyspnea from pressure on the trachea, regurgitation of large amounts of food retained for hours or days, a gurgling sound on speaking, or even recurrens paralysis. I have seen one case mistaken roentgenologically for a lung cavity. The epiphrenic diverticulum is rare. It is sometimes associated with cardiospasm. The effect is a pressure feeling low down in the chest, sometimes cardiac neurosis.

The *traction diverticula* which are much more common than the pulsion diverticula are little known to the clinician or roentgenologist. The pathologist finds them frequently post mortem. In a study of 500 consecutive autopsies for such diverticula, I found them in 25 cases or 5 per cent. They are usually located in the *anterior wall* of the esophagus at the level of the tracheal bifurcation. To demonstrate them the pathologist should open the esophagus along its posterior wall.

The pathology of these traction diverticula is very interesting. They are usually associated with disease of the tracheo-bronchial lymph glands (tuberculosis, anthracosis, or both), less often with a mediastinitis of tuberculous, pneumonic or malignant origin. They result from the adhesion of tuberculous or anthracotic glands to the anterior esophagus wall, with perforation into the esophagus or fibrous healing. As the glands heal with shrinkage and calcification they draw the wall with them. We often find in the esophagus these small funnel-like depressions at the level of the tracheo-bronchial glands. At the bottom of the depression or diverticulum coal pigment or a calcified lymph gland is found. When we realize that 95% of adults have a tuberculous primary complex with mediastinal gland involvement it is easy to understand the frequent occurrence of these traction diverticula.

Most of the diverticula produce no symptoms. When they enlarge and develop into pulsion-traction diverticula symptoms such as difficulty in swallowing, a sensation of solid food "sticking" at the level of the tracheal bifurcation, or even a cardiospasm may develop.

The x-ray examination as it is usually done can easily overlook such a diverticulum. The

fluid barium meal passes freely, and nothing can be seen. When the patient swallows a thick barium paste (marmalade barium paste) it may be easily seen. Or best of all, the patient swallows the paste while lying flat on the table or even with the head lowered during the fluoroscopic examination. I have found four pulsion-traction diverticula in the past two years with this technique. Three had been previously examined and reported negative.

Rarely such a diverticulum communicates with the mediastinum as a result of perforation by a sharp foreign body or ulceration, and leads to a fatal mediastinitis, pleuritis or lung abscess. An esophageo-bronchial fistula may develop. The fact that carcinoma of the esophagus not infrequently occurs at the same level suggests the possibility of malignancy as a result of chronic irritation and metaplasia.

I wish to mention also the occurrence of acute esophagitis of which I shall demonstrate a case, I have also seen two cases of peptic ulcer at the lower end of the esophagus. Sarcoma of the esophagus is rare. I shall show two pathologic specimens of primary sarcoma.

GASTRIC LESIONS

One of the greatest responsibilities of the internist today is to determine the presence or absence of an early carcinoma, be it of the stomach, large intestine, lung or other organ. As a result of education and prosperity of the public more patients come to us each year for a thorough examination and ask us "am I free from cancer?" It is in the careful clinical and laboratory examinations of such patients that we can expect to find early symptomless tumors.

The diagnosis of a tumor of the stomach, even when it is only $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter and in a "silent" region of the stomach is possible. I have in the past four years found four such cases. The last case was a patient referred to me by Dr. Karl Meyer. The man, aged 50, had chronic constipation, but no gastric symptoms. The gastric analysis was normal. There was no occult blood in the feces. During a routine gastrointestinal x-ray examination at the Lutheran Memorial Hospital my attention was attracted to a peculiar cylindric spastic contraction of the pyloric region of the stomach. In the upright position, with the stomach filled with barium no filling defect was visible, even on rotation of

the patient. No defect was visible with the patient lying on his back. The following day the spasm had disappeared. Giving the patient only two mouthfuls of thick barium suspension in milk I observed him while lying on his abdomen. I found a small filling defect on the lesser curvature one inch from the pylorus. It was distinctly visible on fluoroscopic examination and on the photographs. The defect was only $\frac{3}{8}$ inch in diameter. Examination a day later yielded the same small defect. I made the diagnosis of a small tumor, most likely carcinoma, on the anterior wall of the stomach near the lesser curvature and 1 inch from the pylorus. The operation by Dr. Karl Meyer revealed a small as yet non-ulcerated carcinoma $\frac{3}{8}$ inch in diameter just where we had reported it. Histologic examination by Dr. Harry Singer showed it to be an early carcinoma. Dr. Meyer informed me it is the smallest carcinoma he has seen diagnosed.

Time will not permit me to cite three other cases, two of them small benign papillary adenomas, the third also a small carcinoma $\frac{1}{2}$ inch in diameter.

Such small non-ulcerated tumors, unless situated at the pylorus or cardia, can be diagnosed only by a very careful fluoroscopic and photographic x-ray study. The taking of a few photographs with the stomach filled may show nothing.

For a study of the gastric mucosa and the diagnosis of small tumors I wish to recommend the following procedure: First, a small amount of thick barium mixture is given, just enough to fill the depressions between the mucosal folds. The patient is then examined lying down. Careful palpation and compression of the stomach wall with the gloved hand is then carried out, as the patient is gradually raised to the upright position. With this technique not only can small polyps, or carcinomata be seen, but also the mucosal folds can be visualized. The thickness of the folds, their mobility or rigidity, can be determined. Ulcer scars with a stellate arrangement of the folds can be rendered visible. The thickened folds of chronic gastritis surrounding a peptic ulcer can be seen. I have seen very fine folds, or entire absence of the normal folds in pernicious anemia and in advanced cachectic tuberculous patients. Indeed I have made the diagnosis of pernicious anemia twice in the past year in cases of suspected carcinoma by

finding the atrophy of the mucosa. Both were then confirmed by blood examination. Sometimes the finely granular surface the "état mamillonne" of chronic gastritis associated with sub or anacidity can be found.

In all stomach cases the patient should be carefully examined in the recumbent position. Only in this way are some of the cardia carcinomas rendered visible. Sometimes inflation with gas is of value. The combined palpation and fluoroscopic examination is indispensable.

Diverticula of the stomach are rare. I shall present one case of diverticulum high up on the lesser curvature. They are difficult to differentiate from ulcer when on the lesser curvature.

The benign tumors of the stomach are not so rare. They are usually fibro-adenomatous polyps, myomas, fibromas, lipomas or hemangiomas. They may produce no other symptom than anemia due to hemorrhage. Polyposis of the entire stomach occurs and is easily diagnosed with the x-ray. I shall present photographs of such a case.

DUODENAL LESIONS

The most important duodenal lesion is ulcer. This subject we shall not discuss at present. Diverticula are not uncommon. They may be classified into true and false. The true diverticula are most often found in the pars descendens and pars inferior. They also occur in the flexura duodeno-jejunalis. The region of the papilla Vateri is a favorite site. The false or pseudo-diverticula are pouches in the bulb the result of ulcer and ulcer scar. There may be multiple diverticula as part of a diverticulosis of the entire intestinal tract.

INTESTINAL LESIONS

In studying the large intestine I find the barium enema indispensable. I use it as a routine in every gastro-intestinal case. After the intestine is photographed and the bowel has been emptied the insufflation of air yields valuable information. The colon then presents the picture of an illuminated transparent tube instead of a mere shadow. Ulcers, small tumors, papillomas, diverticula or cylindric stenosis can be much more easily seen. The addition of gum acacia to the enema helps in coating the surface of ulcers.

I shall not discuss the diagnosis of carcinoma of the large bowel. There are two lesions which

I shall emphasize. These are diverticula and polyps or papillomata.

Diverticula of the Bowel. Multiple diverticula may occur throughout the entire small and large intestine, or they may be confined to any part of the bowel. They are usually arranged in long rows along the mesenteric attachment. Here the large vessels enter and leave the bowel wall, producing a locus minoris resistentiae. The out-pouchings vary in size from pinhead to the size of a cherry. Sometimes the entire colon is involved. The most common site is the sigmoid.

In the sigmoid these diverticula may lead to a *chronic infiltrative sigmoiditis* frequently diagnosed as carcinoma, syphilis or tuberculosis. The disease is best called a *sigmoiditis diverticularis*. Large inflammatory tumor masses develop with perforation, phlegmonous inflammation, induration and ileus. In the diverticula fecal concretions form, or foreign bodies lodge. These lead to ulceration of the mucosa and infection. Three stages may be recognized: 1, acute; 2, hyperplastic; 3, fibrous or stenosing. The disease must be differentiated from carcinoma, colitis, lues, dysentery, tuberculosis and actinomycosis. The x-ray yields a very characteristic picture of the diverticula when these are not occluded. In the late stage the diverticula may be scarcely visible or absent. The condition may lead to carcinoma. Cases of so-called carcinoma of the colon or sigmoid with spontaneous cure usually are cases of diverticulitis.

I have seen four cases in the past year. Three were in women past 50 years of age, the fourth in a man of 45. The symptoms were those of alternating diarrhea and constipation, at times ileus. The sigmoid was hard and thickened and easily palpable, and tender. The diagnosis of carcinoma had been made in two of the cases. There was no occult blood in the stool in these cases. Pus cells and mucus were found in three. The barium enema showed diverticula in all four cases.

Polyposis. Finally I wish to call attention to the frequent occurrence of solitary or multiple polyps or papillomata in the large bowel. These may be hereditary. The sigmoidoscope is especially valuable in diagnosis. These polyps must be looked upon as precancerous lesions just as much as are the papillomata of the urinary bladder. I have seen several times at autopsy multiple

papillomata of the large bowel, one or even two of which had developed carcinoma. A careful study of the cases of carcinoma of the large intestine often shows polyps elsewhere in the bowel. Some pathologists claim a relationship to polyps in 50% of all cases of carcinoma of the large intestine. Polyps should be removed wherever possible. Besides leading to carcinoma, the polyps may cause hemorrhages, obstruction or intussusception.

In addition to the primary polyps, which are usually adenomata with polyp cells which have malignant tendencies, there is a second form of polyps which result from certain ulcerative lesions. These secondary polyps are seen frequently in healed tuberculosis of the bowel. Here the undermining ulcers meet, leaving bridges of mucosa. Later healing occurs, some of the bridges break and leave polyps lying in a scarred mucosa. Dysentery, ulcerative colitis and syphilis less often produce similar secondary polyps. 55 East Washington Street.

RADIUM TREATMENT OF THE TOXIC AND EXOPHTHALMIC GOITER*

O. W. ALLISON, M. D.,
DANVILLE, ILL.

Our treatment of these cases is very simple and is administered without pain, excitement or any appreciable danger. The patient is usually given the treatment in the office unless there is a very good reason for not doing so. If the nervousness, weakness or tachycardia is so marked that the patient requires absolute rest in bed, it would be much better to have that patient in the hospital, run a basal metabolism test, check up on heart, blood, kidneys, etc.

After stating that the treatment will be painless, the next that the patient wishes to know, is what will the treatment do for them. Will it cure their troubles, reduce the size of their neck, cause their eyes to recede? Will a cure be guaranteed? They are told the good orthodox physician does not guarantee cures. It isn't being done. They are told what they may reasonably expect in the course of the treatment. An improvement or cure of the nervousness, exhaustion, tachycardia, and complete, partial, or no

reduction in the goiter and possibly some reduction of the protruding eyes. These answers are not always the same and must be made to fit the case present. There will be no reduction of the cystic or hard sclerotic types.

It sometimes happens that the patient has allowed the goiter to grow to a large size, or it has not caused a great deal of trouble until the size has become large. If removal of the tumor mass is desired then surgery would be indicated, if the operative risk is not great. If the risk is great, radium may be applied with a good chance of greatly improving the symptoms. When the tumor mass is large, it is too much to expect radium to remove it. Radium will cause some reduction in the size of the larger goiters and ameliorate or abate the symptoms and help to get the patient ready for an operation. In the early cases or those with smaller tumors you may expect much better results both cosmetic and symptomatic.

About two weeks after taking the treatment, the patient will manifest some of the effects of radium reaction on the thyroid tissue. This will be recognized by an increase in the nervousness and pulse rate. Some patients will state that the neck feels hot inside without any evidence of erythema on the outside. This manifestation of the radium reaction will usually last about a week or ten days, then gradually subsides, followed by a general gradual improvement of all the symptoms.

There are a few patients, especially the old debilitated with myocarditis or endocarditis, in which the toxic adenoma had developed late in life, who will have to be rayed very carefully. These patients, or many of them, have been more or less nervous all their lives with no one able to state the real cause of the nervousness, exhaustion, and tachycardia until the toxic adenoma has developed to a distinctly visible type. The reason for not making an earlier diagnosis is very easily explained. The metabolism apparatus has not been so accessible until the last few years. Now this apparatus is a part of the hospital's regular equipment and if we do not have one of our own it is there for our use whenever needed.

The raying of the type of cases just mentioned must be done with great caution, because an overdose for them means an excessive reaction

*Read before the Section on Radiology, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

which in their debilitated condition will not be well tolerated and an early death may be the result. The tumor mass seems to melt away like snow under a warm sun and the nervousness, exhaustion, and tachycardia are increased beyond endurance.

Treating the ordinary case I use 115 mg. of radium element screened with .5 mm silver,—1 mm copper, 2 mm pure gum rubber, five or six wrappings of gauze, and for distance 1 cm cork. Time, two to three hours exposure over each lobe. The treatment is repeated about every four weeks, of course depending upon the reaction or any idiosyncrasy the patient may show, until the toxic symptoms have abated and the tumor mass has decreased to about all that we may expect without excessive radiation and keep our metabolism test within reasonable limits. To obtain this result will require about four to ten monthly treatments, depending upon the age and development of the tumor, toxic symptoms, metabolic rate, etc.

I would say the main reasons for considering or choosing this method of treatment are, viz:

1. Usual freedom of danger.
2. Simplicity and ease of administration.
3. No pain.
4. Usually no hospitalization.
5. No anesthesia of any kind.
6. Generally good results with properly selected patients.

REFERENCES

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2. International Clinics, Vol. 1, March, 1928, lines 33, 34 and 35.

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DISCUSSION

Dr. Wm. L. Brown, Chicago: Dr. Allison speaks of "possibly some reduction in the exophthalmos." I would like to state that it has been my experience that where the exophthalmos is of two years duration or less I have noted very material improvement in practically all of the cases and in some almost complete reduction or disappearance of the exophthalmos. Where the exophthalmos is of longer standing, the improvement, of course, was much less.

Regarding the basal metabolism rate, there is no question it is of value in the diagnosis and also in following up the progress subsequent to the treatment. It has been my experience and the experience of others also that the basal metabolism rate as a rule diminishes rather rapidly for about two weeks, then during the third and fourth weeks following the treatment fre-

quently it goes up considerably and then goes down gradually thereafter.

I would like to refer to Dr. Allison's description of his applicator, not in the spirit of criticism but because in our American Radium Society meetings we are trying to develop something along the idea of the standardized dosage or applicators. He uses the term there "three or four wrappings of gauze," and in reading articles presented by other men they will speak of two centimeters of gauze. I think that is rather indefinite because in my experience in the use of gauze, two centimeters might vary considerably and a few millimeters' difference in distance might cause an unnecessary burn to a patient.

In our work we use a standard applicator in almost all cases and that is fifty milligrams with five-tenths millimeters of silver, one millimeter of brass and one inch distance. We put this in the center of a cylinder made up of balsa wood so that we have one inch distance in all directions.

I learned this in the treatment of the thyroid as a result of patients going to sleep and letting the chin fall down on the top of my applicator, which wasn't properly protected, and unless we had someone present to keep the patient awake he might get a burn. So we use this two inch diameter cylinder.

In order to vary the dosage we sometimes increase the amount, or we increase or decrease the time of exposure.

In speaking of the reasons for considering and selecting the radium in the use of these goiters, he speaks first of the freedom from danger. I want to add a word of caution. In very toxic cases it is my opinion that there is a great danger present if too large a dose is given at one sitting. I have known of deaths within forty-eight hours following radium treatment for a very toxic goiter. Because of this, we have divided our first treatment into three applications at two weeks' intervals, giving from two to two hundred fifty milligram hours over each lobe for the first treatment, having the patient come in in about twelve or fourteen days and quizzing her and examining her for reaction and giving a slightly larger dose if warranted. Then if she comes in two weeks later, we give a third dose. In many of our cases this has been sufficient; in others we have had to give subsequent treatments after four or five weeks.

I also want to add a word about the necessity of using other treatment along with the radium. Too often I think we are a little inclined to depend upon radium alone, and in my opinion it is necessary that we follow the general medical management of these cases just as carefully as if we were not using the radium. There is no question in my mind but that results are much better if we put our patients to bed and give them complete rest, digitalis, Lugol's, and all of the other medical and symptomatic treatment the same as where radium is not used.

I have had only one case in which, as far as I could see, the radium exerted absolutely no influence whatever upon the goiter, the size of the thyroid or the symptoms. This patient had had three previous opera-

tions with quick recurrence in both the size of the tumor and symptoms. Over a period of nine months we gave this patient approximately twelve thousand milligram hours, and so far as I could tell it had absolutely no effect upon this patient.

In all of our other cases we noted very definite improvement and a number of almost miraculous cures.

There is one other condition that I'd like to mention that is associated with this paper (and also Dr. Schmitz'). I have had five or six cases where radium was used for the treatment of a uterine condition, fibroid or fibroid and hemorrhage, who had also a thyroid complex. Much to my surprise the thyroid symptoms showed very much improvement following the treatment. The patient wasn't referred to me because of the goiter at all, and on the other hand I have had acute cases where they were sent to me for treatment of the goiter conditions and had associated with them uterine hemorrhages and one uterine hemorrhage and fibroid, which showed marked improvement in these symptoms as a result of the treatment, or I should say, following the treatment of the thyroid with radium.

Dr. R. T. Pettit, Ottawa: I just returned today from three months in Europe. There are several observations with several men that might be of interest to you.

Professor Hans Holfelder of the University of Frankfurt, Frankfurt-on-Main, uses x-ray and not radium in his cases. It was his opinion that the cases that did best with radiation therapy were the bad cases rather than the mild ones and that, as Dr. Brown has said, there is great danger in treating these bad cases. He gives small doses at rather frequent intervals and never give over twenty-five per cent. of an erythema dose at any one sitting, and the interval between treatments is ten days to two weeks.

At another Institute, the Radiumhemmet in Stockholm, a great many goiter cases are treated. They are prepared to give either radium, x-ray or both, and it is the opinion of Dr. Bervahn, who has charge of the general polyclinic there and who has these cases under his care that x-ray is preferable to radium.

Dr. I. S. Trostler, Chicago: The subject of the x-ray treatment of goiter, while not a part of this discussion (but on account of being opened up by Dr. Pettit), was under discussion at the Chicago Roentgen Society a month ago and, while I did not know I had it, I happen to have a memorandum in my pocket regarding my series of cases.

I think if you will go around the country here and abroad and interview the physicians who have both radium and x-ray, those individuals will select the x-ray in preference to the use of radium in the treatment of thyrotoxicosis. Those who have only radium will, of course, prefer radium.

Up to the 12th of April, 1928, I have treated 443 cases of toxic goiter. The number of those cases clinically cured (I say clinically only) was 316, or 71.3 per cent. Clinically improved, 96 or 20.6 per cent.

Rendered operable and later operated on 15 or 3.19 per cent. Unimproved, 16 or 4.7 per cent. The number of cases treated after having been operated on, 27, of which 3 had had two operations, and all 27 were clinically cured. The oldest patient treated was sixty-eight; the youngest patient was ten years. The average age of 443 patients was 38 years 8 months. Three of these were sisters, 20, 22 and 24 years of age, respectively.

The shortest time covered by treatment to effect a clinical cure—not the time to effect a cure but the time occupied by the treatment—twenty-two days. That is, two applications. The longest time covered by treatment to effect a clinical cure, thirteen months. Among the above patients were four physicians, three cured and one rendered operable; six physicians' wives, all of whom were clinically cured; eight physicians' daughters, and of these two were daughters of surgeons who are operating on thyroid. All eight were clinically cured.

Every one of the 27 who were operated on and not cured showed a thymus shadow which the surgeon did not get.

Dr. Allison (closing discussion): I wish to thank all the gentlemen for their discussion.

In regard to Lugol's solution, in the use of this solution I find that I never get more than just temporary relief.

CONCERNING CERTAIN FEATURES OF MEDIASTINAL TUMOR*

FRED M. SMITH, M. D.,

IOWA CITY, IOWA.

The diagnosis of mediastinal tumor, although frequently not difficult, is often missed. The clinical manifestations are necessarily variable and depend on the size and location of the tumor. The tumor may be large and not produce symptoms nor be discovered by physical examination. The symptoms from a small tumor may, on the other hand, be a prominent feature. The great diversity of symptoms induced by pressure on the various structures in the mediastinum is responsible for the confusion with a number of conditions. It is not the object of this paper to discuss the symptoms and findings in mediastinal tumor but to point out some of the manifestations which lead to an error in diagnosis. Because of the similarity of the signs and symptoms of aneurysm and those of a solid tumor, the former is included in the discussion.

The following cases were selected from our

*From the Department of Internal Medicine, State University of Iowa. Read before the meeting of Illinois State Medical Society, Chicago, May 11, 1928.

series at the University Hospital because of particular features in their clinical course:

B. M., age —, housewife, was admitted to the University Hospital August 19, 1926. She stated that she was well until April, 1926, when she contracted a cold. The cold persisted for about a month. She then contracted a new infection. The coughing became paroxysmal in character and was occasionally followed by vomiting. A few small cervical glands were discovered by the family physician, on the right side, but no significance was attributed to them. Later there was a complaint of pain in the left upper chest and palpitation of the heart. About this time a temperature was noted. Finally, another physician was consulted who made a diagnosis of pulmonary tuberculosis and sent the patient to a sanatorium. Tuberculosis was excluded and the patient was transferred to the University Hospital. When admitted to the University Hospital the clinical manifestations were asthmatic-like in character. The possibility of a bronchial asthma was made more reasonable because of the history of hay fever. In the meantime there had been very little increase in the size of the cervical glands. The condition was thought to be bronchial asthma until an x-ray picture of the chest was taken which showed an increased density of the mediastinum. A gland was then removed and the histological picture was that of Hodgkin's disease. Following a series of x-ray treatments the asthmatic-like features disappeared.

2. W. P., Age 34, white, salesman, was admitted to University Hospital, April 30, 1924. The illness began in February, 1924, following measles. The patient noted that he did not regain his strength and soon his appetite began to fail. In a short time a full sensation appeared in the chest and there was a slight cough. An evening temperature was discovered. The family physician was consulted who advised x-ray examination of the chest. The findings were reported negative. The temperature continued and the cough persisted. Night sweats appeared and the cough increased. Another x-ray examination was made in the early part of April but again the findings were regarded as insignificant. The cough became more productive. The average weight was 146 pounds. The weight on admission to hospital was 126 pounds. In the examination a few cervical glands were found on the right side. The findings in the chest were essentially negative except for cog-wheel inspiration in the left upper front and an occasional rale in the right apex. The heart was normal in size and there were no murmurs. The spleen was not palpated. The x-ray examination of the chest showed an enlargement of the mediastinal glands. The diagnosis of Hodgkin's disease was later established.

3. Mrs. J. L., aged 67, white, housewife, was admitted to the University Hospital, September 23, 1925. The patient stated that she had a broncho-pneumonia in 1922. Following this illness she began to notice wheezing in the chest accompanied by a cough and occasionally associated with a choking sensation. These attacks usually appeared in the morning after getting up, but might awaken her from a sound sleep. There was a

progressive weakness and at time puffiness of the eyes was noted. The pupils were regular and the reaction satisfactory. The heart appeared to be normal in size, the tones were somewhat distant and no murmurs were heard. The aortic second tone was not accentuated. The systolic blood pressure was 150 and the diastolic 80. Over the posterior lower chest the breathing tones were tubular and crepitant rales were present. The Wassermann reaction was positive. In the x-ray examination of the chest a dilatation of the arch of the aorta was discovered.

4. Mrs. N. S., aged 50, white, housewife, was admitted to the University Hospital, September 18, 1925. The patient was well until she contracted a cold, March, 1925. She gradually recovered but soon contracted another infection. In a short time she began to have asthmatic-like attacks. The pupils were somewhat sluggish in their reaction to light. The cervical veins were moderately distended. There was an impairment in the percussion note over the left apex anteriorly. The breathing tones were harsh and bubbling rales were heard. The heart was moderately increased in size. A faint systolic murmur was heard over the aortic area and there was some accentuation of the second tone. There was a questionable increase in the substernal dullness. The chest plate showed an aneurysm of the aorta and the Wassermann was strongly positive to both antigens.

5. W. J., Aged 51, laborer, was admitted to the University Hospital, August 24, 1922. The patient began to notice weakness in April. The weakness gradually progressed and finally the appetite became poor. In June he began to have paroxysmal attacks of coughing, particularly on lying down. The coughing was aggravated by a change in the recumbent position. The sputum varied in amount but on a few occasions he raised large quantities of thick, purulent material which had a foul odor. During this time there was a temperature. Numerous examinations of the sputum were made for tubercle bacilli and all were negative. About July 10, during a paroxysm of coughing, a small chunk of clotted blood was raised. Thereafter, for several days, the sputum was blood tinged. The weakness continued to progress and the appetite remained poor. There was a reduction in weight from 155 to 118 pounds. The findings on examination were essentially confined to the lungs. There was an impairment of the percussion note over both apices and rales were heard. The pupils were regular and active, and the patellar reflexes easily obtained. The heart was negative. In the fluoroscopic examination of the chest a dilatation of the transverse arch of the aorta was noted. The Wassermann reaction was strongly positive. On September 3 the patient died from the rupture of the aneurysm into the trachea. At necropsy a moderate dilatation of the transverse arch of the aorta was found. At the point where it crossed the trachea there was a rent about 2 cm. long in a small aneurysmal sac which had eroded through the tracheal wall.

6. F. A., aged 50, white, farmer, was admitted to the University Hospital, September 9, 1927. In Novem-

ber, 1925, a dull grinding-like pain was noticed in the left shoulder and the back of the neck. This distress continued and was the cause of the patient coming to the University Hospital. The pupils were small, irregular and sluggish. There was a pulsation in the suprasternal notch and an increase in the substernal dullness. The heart was moderately increased in size but no murmurs were heard. The aortic second tone was not accentuated. The Wassermann was strongly positive and the x-ray examination showed an aneurysm of the aorta.

7. C. L., aged 56, white, teamster, admitted to the University Hospital, November 8, 1921. The entrance complaint was a dull, aching pain over the lower back at about the level of the second lumbar spine. About two and one-half years prior to the present admission to the hospital the patient was thrown from a load of hay. He fell on his left shoulder. Severe pain in the back followed and several hypodermics were required for relief. The patient was taken to the hospital and kept in bed nine weeks. After getting up the back felt weak and he had a tendency to bend forward. There was a dull throbbing ache in the lower back most of the time. The patient was then admitted to the orthopedic service of the University. A body cast was fitted and left on for six weeks. After removing the cast the back was straightened. The deep seated pain, however, still persisted. The pupils were unequal; there was some increase in the size of the heart; the aortic second tone was accentuated, no murmurs were heard. The patellar reflex on the left side was not obtained. The Wassermann was positive. In the fluoroscopic examination of the chest the transverse arch of the aorta was normal in size. A fusiform dilatation, however, was noted at about the level of the seventh dorsal spine.

8. L. G., aged 25, white, miner, admitted to the University Hospital, September 23, 1927. On July 4 the patient had an automobile accident in which the car turned over twice. His friend was seriously injured and died a few days later. The patient, other than being bruised and in highly nervous state over the accident, seemed to be in fairly good condition. About two weeks later he noticed a pain in the left upper quadrant of the abdomen. Within four or five days the neck began to swell and the breathing became difficult. When admitted to the hospital there was rather extensive swelling of the face and neck. The jugular veins were distended and dilated veins were noted on the upper chest which extended to the neck and shoulders. There was a marked increase in the substernal dullness and a heaving of the entire precordia. The cardiac dullness was increased, particularly to the right. The heart tones were faint and no murmurs were heard. Small glands were felt in the axillae. The liver was tender and the edge was palpated four or five fingers breadth below the costal margin. In the x-ray examination the findings resembled those of a dilated aorta with an increase in the size of the heart,

particularly on the right side. A few days later the patient complained of severe pain in the left upper quadrant. A firm, tender mass was felt in this location which seemed to be continuous with the liver. This mass gradually increased in size and the pain and tenderness persisted. The signs of superior vena cava obstruction progressed and the patient died October 20. At necropsy a carcinoma of the left lobe of the liver was found with secondary involvement of the glands at the base of the heart and about the aorta.

In five of the eight cases described, pulmonary symptoms predominated. The clinical course in Cases 2 and 5 resembled that of pulmonary tuberculosis. The resemblance to tuberculosis was perhaps most striking in Case 5 because of the rapid loss in weight, daily temperature, the amount and character of the sputum, the hemoptysis and the pulmonary findings, particularly in the absence of physical signs suggesting an aneurysm. An earlier diagnosis was not made because of the delay in the x-ray examination.

In Cases 1 and 2 the superficial glandular enlargement was an insignificant feature and confined to the right side of the neck. In Case 1 the history and clinical manifestations at the time of admission to the hospital were regarded as typical of bronchial asthma and it was several days before the significance of the glandular enlargement was appreciated. The history of pneumonia in Case 3 with the persistence of the cough and the subsequent development of asthmatic-like attacks would not ordinarily suggest mediastinal tumor. Furthermore the results of the physical examination did not direct attention to this possibility.

Cases 6 and 7 are of particular interest because of the location of pain. In the former the sluggish, unequal pupils, the pulsation in the suprasternal notch and the very evident increase in the substernal dullness at once eliminated any doubt concerning the diagnosis. In the latter the picture was complicated by the history of injury. The character of the pain, the unequal pupils and the absence of the patella reflex on one side, however, pointed to the aorta as being the possible source of the disability.

The presence of a mediastinal tumor with pressure on the superior vena cava was very evident in Case 8. The onset of the illness following an automobile accident and the location of the pri-

mary tumor were, however, unusually interesting features.

The above patients emphasize the importance of considering the possibility of mediastinal tumor in connection with any symptom referable to the chest. Asthmatic-like attacks, regardless of their close resemblance to bronchial asthma, justifies a careful survey for the evidence of pressure in the mediastinum and warrants an x-ray examination of the chest. The clinical manifestations of pressure on a bronchus may be identical with those of pulmonary tuberculosis except for the absence of tubercle bacilli in the sputum. Pain in the chest, neck, shoulders or even in the back or abdomen, particularly in the former locations, should at least suggest the possibility of pressure. The symptoms and signs of pressure in the mediastinum are in the vast majority of instances, due to an aneurysm or to a solid tumor belonging to the malignant lymphoma group. Alterations in the pupils, absence or diminished patellar reflexes, even in absence of cardiac findings should direct attention to the aorta, warrant a Wassermann test and lead to the detection of an aneurysm.

The enlargement of the cervical glands, even though the spleen is not felt in the presence of pulmonary symptoms, should point to the possibility of malignant lymphoma of the mediastinum.

DISCUSSION

Dr. George Thomas, Palmer, Springfield: It appears to me that this paper of Dr. Smith's is of the greatest interest not only to the man who is specializing in diseases of the chest, but to the man engaged in general practice because it serves to emphasize problems which confront all of us and some of those things which we are inclined to overlook.

Discussing the subject from the standpoint of one particularly interested in pulmonary tuberculosis, I would recall to your minds the fact that, only a few years ago, institutions for the treatment of tuberculosis recognized a general tendency on the part of physicians to make any diagnosis on earth except that of tuberculosis so that the actual diagnosis was frequently made when the patient had reached a terminal stage.

Critics of sanatoria, at the present time, are inclined to feel that we are calling everything which shows vague and indefinite chest symptoms tuberculosis and that a careful search of sanatoria would bring to light many patients who have been under treatment for long periods of time who are not tuberculous at all.

Dr. Smith points out the importance of the very careful study and scrutiny of all those patients in whom a diagnosis of pulmonary tuberculosis has been made

and particularly those cases in which the diagnosis has been made recently or on insufficient evidence. While the percentage of non-tuberculous patients in sanatoria is over-rated, there is a considerable percentage of patients who are continued under treatment for tuberculosis who would not be in institutions if our studies were made more carefully.

In this group of mediastinal conditions the recognition of pre-existing syphilis is obvious and yet the number of patients in whom a final diagnosis has been made without a Wassermann or Kahn test is astonishing. I regret to say there are still some sanatoria in which the Kahn or Wassermann test is not a matter of routine.

Dr. Smith recalls a fact which has been repeatedly emphasized in my own recollection for over thirty years and that is that we should be exceedingly cautious in accepting a diagnosis of asthma per se. I am convinced that a diagnosis of asthma should be accepted in the same critical spirit that we would accept a diagnosis of edema and that a search must be made for the underlying cause.

In the mediastinal conditions discussed, Dr. Smith refers to the difficulty in diagnosis from pulmonary tuberculosis. I should like to emphasize the importance of a more careful study of the sputum in all chest conditions. In many instances we receive in sanatoria patients who have never had a sputum examination. On the other hand, there is still a manifest willingness to regard a single sputum examination as more or less conclusive. In such cases as have been described by Dr. Smith, it is a safe rule to examine the sputum not only once, not only ten times; but to make at least thirty sputum examinations unless a positive is found. It must be borne in mind that the tuberculosis nature of the condition can not be conclusively negated on any number of sputum examinations. There are unquestionably cases of pulmonary tuberculosis in the advanced stage in which we never get a positive sputum. Certainly there are many cases in which thirty or forty sputums have proven negative, but in which positive sputum is found a few weeks or a few months later.

There is one point I should like to point out especially and in this I am sure Dr. Smith will confirm my opinion. Serious mistakes will be made if we are content with an incomplete diagnosis, however correct it may be. We must bear in mind the co-existence of tuberculosis with practically every other thoracic disease. I have in mind the very embarrassing situation experienced with a patient who entered the sanatorium with some evidence of pulmonary pathology and a discharging sinus from the sternoclavicular joint. This patient showed a four plus Wassermann. Both the pulmonary tuberculosis and the sinus cleared up beautifully under specific treatment and his discharge from the sanatorium was recommended when at the last moment a positive sputum was found and the future history was one of a well defined active pulmonary tuberculosis.

Dr. Smith has splendidly brought out angles of a

rather technical subject which are of the utmost importance in the every day experience of the general practitioner.

Dr. Benjamin Goldberg, Chicago: Dr. Palmer has thoroughly covered in his discussion the important reasons why tuberculosis should be considered in mediastinal tumor conditions in their differentiation. Let me just reiterate and impress you further with the statement that any pathological condition occurring within the thoracic cavity may produce some of the symptomatology of tuberculosis and, therefore, simulate it, so that every condition must be diagnosticated with that in view.

Concerning mediastinal tumors from a differential standpoint, they are usually classified in the following divisions:

Acute inflammatory, usually associated with spinal disease or acute infection of the mediastinum,

Vascular tumefaction, such as aneurism,

Neoplasms.

To differentiate between these types of mediastinal masses, flat x-ray films are not of greatest value, and while they show the shadow density of the mass present, they do not depict the plane in which that mass lies, so that its seat of origin can more easily be determined.

The determination of this position is considerably clarified by placing the patient before the fluoroscope in the oblique position, usually the right, in which position in a majority of instances it can be determined immediately as to whether the tumor mass belongs to the aorta, arises from the peribronchial or tracheal glands, or arises along the course of the spinal column.

Diagnosis has only one real import in medicine and that is treatment. Lymphomas yield very readily to x-ray treatment. Malignancies of a carcinomatous type which have spread within the thoracic cavity, do not. It is, therefore, of utmost importance for one to do a biopsy immediately that an adenopathy in the cervical or axillary region is found in connection with a mediastinal tumor mass. The patient will, in most instances, be granted a year or more of life if the condition be a lymph adenoma, which can be held in abeyance by roentgen ray therapy.

Dr. D. C. Sutton, Chicago: This paper has been so ably presented and discussed that there is not very much of consequence to be added but there are one or two points I would like to emphasize.

One thing that was especially noticeable in every case of tumor growth that Dr. Smith spoke of, he gave temperature as a part of the history and it has been especially noticeable in our experience how constantly fever is present in the course of the new growths within the mediastinum, and this fever may be of such a character as to often mislead as to the possibility of it being an infectious process rather than a tumor growth.

It seems to me that that is one of the reasons why so many of these cases are in error, diagnosed, over a long period of time, as tuberculosis or some other infection.

There is no need for me to re-emphasize the presence

of asthma except to say that that has been my own personal experience. Perfectly typical asthmatic attacks occur not only in the course of aneurism but in the course of other tumors of the chest.

There is one physical finding that I'd like to emphasize because it has helped me on several occasions and that is the early appearance of recurrent laryngeal nerve paralysis not only in aneurisms of the transverse arch but also in early carcinomas of the bronchus where the arch passes over the bronchus. It takes a comparatively small growth at that point to produce a recurrent laryngeal paralysis and if that is kept in mind, often it offers the one key to a very early diagnosis.

I certainly appreciate very much hearing Dr. Smith's paper.

Dr. Leon Unger, Chicago: I merely want to emphasize what Dr. Smith said about the importance of thorough examinations in cases of asthma. In our asthma work at Northwestern University, we make a point of having every asthma case put through a complete examination including a very careful history, physical examination, and Wassermann test, complete blood count, urine analysis, repeated sputums and x-ray, fluoroscopy and plating the chest. Every case is also sent to the nose and throat department and sinuses are x-rayed where the nose and throat men believe it is indicated. In this way we avoid the discouraging results which we would otherwise obtain in a good many cases of asthma.

It is obviously foolish to go ahead with patients complaining of asthma and make skin tests and waste a lot of time and obtain discouraging results in a patient who has, for instance, syphilis of the lung or who has mediastinal tumor such as Dr. Smith has shown, or Hodgkin's disease or some condition such as that.

By our careful examinations before we start skin testing, we have eliminated the necessity of skin testing in our asthma cases in a considerable percentage of cases. I should say that approximately forty per cent of the cases that come to us for so-called bronchial asthma are not true bronchial asthma at all but are conditions due to other involvements in the chest, particularly cardiac conditions and mediastinal tumors, syphilis of the lung and a few tuberculous cases. The number of tuberculous cases we get is comparatively small in comparison to the number of asthma cases we have.

I believe that the x-ray of the chest is absolutely indicated in every single case of asthma you get and without any exception, no matter whether the patient is a child or an adult. Of course, in children the majority of cases of bronchial asthma are true bronchial asthma. New growths are very rare, but in persons who first get asthmatic symptoms after the age of forty, the chances of tumors, of syphilis of the lung, of other new growths, is very great and so we make a routine examination in all cases.

I want to thank Dr. Smith for his able presentation.

Dr. Fred M. Smith: Gentlemen, I appreciate very

much the discussion and only wish to make one further remark:

In the cases that were presented the diagnosis was established from the x-ray examinations. In some instances, however, the diagnosis is more difficult, particularly when the tumor is small and the outstanding feature is pain which may be referred to different parts of the chest or even to the abdomen. In these, a detailed history is important in that attention is directed to a certain location which stimulates a more careful x-ray examination of this area.

THE MECHANISM OF NEPHRITIS*

WM. A. THOMAS, M.D., and EDMUND
ANDREWS, M.D.

CHICAGO

Clinical and experimental observations and facts accumulated in the last few years demand a revision of the entire theory and teaching of nephritis. The former viewpoint is that there occur in the kidneys, as the result of inflammatory or degenerative process, lesions which impair the function of the kidneys, resulting in retention of fluid and water soluble substances (metabolites), increased blood pressure, and that the general symptoms of nephritis may be ascribed to the foregoing retention. This view has been borne out particularly by the pathological findings in advanced nephritis. The recent and more reasonable viewpoint, supported by newer technique in experimentation and more accurate observation clinically is that the clinical condition described as nephritis is a general or constitutional disease, with functional or anatomic involvement of many or all tissues—that the gross and microscopic evidence of damage in the kidneys is due to a greater concentration of toxic agents at the point of excretion, but that the important damage is done in other tissues, especially liver, central nervous system, sympathetic and endothelial, and that nephritis is no more a strictly renal disease than scarlet fever or syphilis, for example, are diseases of the skin. In the first place, it has so far proved impossible to

produce the picture of nephritis by purely renal damage. Doubly nephrectomized dogs live from four to seven days and die rather suddenly, apparently of weakness. There are no convulsions, no coma, no increase of blood pressure. Similarly, humans with total suppression of urine (following catheterization, etc.) die without any of the signs or symptoms of uremia. Furthermore, those toxins, bacterial or chemical (especially the heavy metals) which experimentally produce nephritis, are tissue poisons, and do general, not local damage.

It was shown in a previous communication¹ that a complete clinical picture of uremia can be produced in a normal dog by the intravenous injection of hypertonic salt solution. Table 1 illustrates the result of such an injection. There is a rapid rise in blood pressure, followed by a fall in the later stages; muscular twitchings come on, later convulsions occur, and after a lucid interval deep coma supervenes. Air hunger is marked. Progressive acidosis is evidenced by falling plasma CO_2 . Hydremia is marked. There is at first a watery polyuria, followed by an oliguria with albumin and casts. N. P. N. rises and edema occurs, especially of the lungs, with expectoration of frothy mucus, and marked edema of the brain is constantly present.

It is obvious then that we have reproduced a typical Kussmaul syndrome in all its clinical, histological, and chemical details. The important point is that this was done without any accompanying renal damage. Microscopic slides were made in many of these experiments and it is quite evident that these kidneys are normal in every respect as far as the microscope can tell us. All that we have done in these experiments is to increase the number of Na and Cl ions in an organism which cannot adjust itself on account of suppression of urine.

We have therefore disassociated nephritis from the kidneys to the extent of producing nephritic syndromes in the presence of normal kidneys and showing that nephrectomy does not produce such syndromes. What then is nephritis?

Let us examine the distribution of water salts and protein. (Table 1.) In the first place we wish to call attention to the fact that the chloride readings in these experiments are quite comparable to those found clinically in the human. One of the most striking changes noted is the rapid fall in the protein concentration of the

*Paper read before the Chicago Society of Internal Medicine, November, 1927.

From the Department of Surgery, University of Illinois College of Medicine, Chicago.

Due to delay in publishing, there have been certain changes in the theory of this article. Definite protein substances of the peptone group have been found in combination with the serum proteins, further explaining their deviation from normal proteins and accounting for their elimination through the kidneys.

blood. The blood proteins make their way into the tissues, and there bind the water as the acidosis increases and edema takes place. All the free fluid in the body is taken up into a firm combination with the colloid and not enough is left to carry oxygen, and air hunger ensues, followed by asphyxial convulsions. In the terminal stages there is not even enough circulating media left to carry on the heat regulating mechanism of the body and the terminal fevers of uremia are thus brought about. It has repeatedly been noted clinically that there was a concentration of formed elements of the blood in such cases, but the importance of the loss of protein and water

chlorides. Some of it passes into the muscular and skeletal tissues, but it is very striking that it reaches higher concentration in the liver and brain. Edema of the brain is the most striking phenomenon in postmortem examinations of uremia, and we quite agree with Fischer that this is the cause of many of the symptoms of clinical uremia.

It is the liver, however, which seems to have the greatest affinity for the chlorides, and it is very striking that in our experiments this was the only organ which showed any cellular damage. Slide I shows the terrific degenerative changes which occur in the liver. There is a

ARTIFICIAL UREMIA

10 K. dog injected with 5 per cent NaCl at rate of 22 cc per Kilo per hour for 90 minutes.

Time	Intake		Urino						Blood				Lymph *			REMARKS
	Vol.	NaCl	H ₂ O	Ur-ine-O	Alb	Cest	SpGr	Protein	Cl.	Blood * Pressure	Temp.	Pro-tein	CL.	CO ₂		
0	0	0	0	313	0	0	10.14	57	311	120	99.2	47		40	Injection begun	
10	65	3.25	10	378	0	0				130		45	259			
20	130	6.50	25	512	0	0		56		140		46		45	Muscular twitchings	
30	195	9.75	50	542	tr.	0	10.10		327	170	100.4	47			Restless	
40	250	13.00	87	534	0	0		53		200 *		42	270		Convulsions	
50	325	16.25	105	631	0	0		50	400	200 *		41				
1hr.	390	19.50	130	517	tr.	0	10.04			200 *	100.8	30		35	Violent repeated convulsions	
70	455	22.75	160	538	*	few			417	200 *		37.5	270		Violent repeated convulsions and dyspnoea	
80	520	26.00	170		*			51	501	200 *		36			Violent repeated convulsions and dyspnoea	
90	585	29.75							610			35			Injection ended	
100			195		**	few		47	580			35.5	351		Incoordination, convulsions.	
110												34.5			Confused-restless	
2 hr.			210		***	*	10.09	48	571	180	101.0	32.0	337	29	Convulsions-fever.	
130								48	623			31.5			Marked air hunger	
140								47	523			29.5	331		Drowsy, respirations 28	
150			225	490	***	*		45		160		31.7			More drowsy, one convulsion.	
160								45				29.5	327		Respirations 34.	
170								44	511			31.5			Cometose, can be aroused.	
180			230		***	***	10.21	43		110	101.2	35	306		Deep coma, violent air hunger.	
5 hr.			230		***			42	517	78	101.2			27	Deep coma, no corneal reflex	
12hr.			250		***	***		47	472	50	102.0			21	Deep coma.	
18hr.			250					51	342		102.2			15	Died in coma (nineteen hours)	

*From similar experiments.

TABLE I

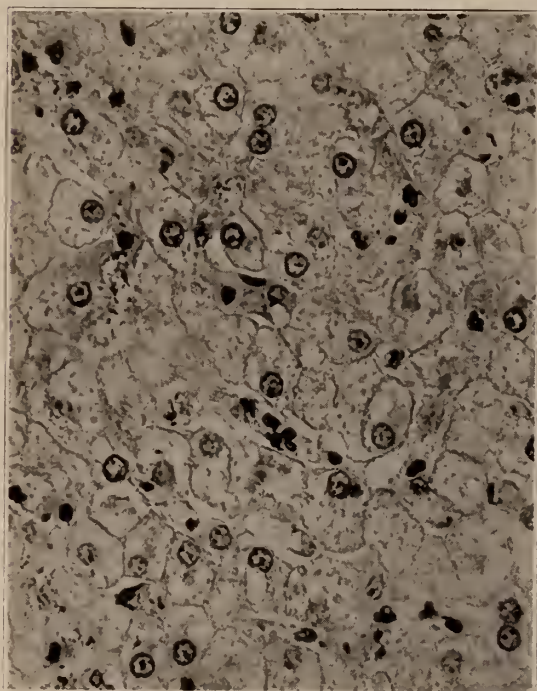
has not been sufficiently emphasized. In these animals edema takes place, although less than 1 per cent of body weight of water has been added and of course this edema represents just that much loss of fluid by the blood. It is not a matter of superhydration, but a re-allocation of water in the tissues.

It is clear that not only protein but chlorides in large amounts make their way into the tissues quite rapidly. As the blood chlorides fall to normal levels, they were followed into the tissues by making analyses of various organs, and the accompanying table shows clearly what becomes of them. There is a progressive fall in the blood

destruction of the cell membrane. The cells seem to be literally falling to pieces. Much protoplasm actually lies outside the cell wall.

Let us now diverge a moment to consider a fundamental cellular mechanism which has hitherto received but little medical recognition. Much of the recent biological literature deals with changes in permeability of cells due to variations of the ratio of calcium to sodium and potassium salts in the media. In order to sustain life this ratio must be retained within very narrow limits. If the amount of calcium is increased the cell "freezes"—it becomes impermeable to substances either within or without its

membrane. If the calcium is decreased the opposite occurs and the permeability is increased to metabolites even to the extent of cell dissolution. In these cases of experimental nephritis or uremia—there is of course an albuminuria, or better, proteinuria, as the constituents comprise various globulin as well as albumin fractions.



SLIDE I.

A study was made to identify these proteins and determine their source, and in this we were successful, demonstrating for the first time protein of definite organ and tissue origin in the urine. In this work the precipitin test was used. Working first with liver, the organ was perfused until the perfusate was blood free (biuret test) and then finely macerated and ground for three days in a ball mill. The total water soluble extract was precipitated with ammonium sulphate to exclude lower toxic fractions of proteoses, etc., dialyzed, to remove the ammonium sulphate, and rabbits were immunized with repeated injections of a one per cent. solution. Other rabbits were injected with normal dog serum, and anti-sera of high potency, often 1/100,000 were obtained, called respectively anti-liver serum and anti-blood serum. The anti-liver serum is bivalent, reacting of course with blood as well as liver tissues, since the liver extract was far

from blood free. However, in testing both the urines and the solutions of urinary proteins from these uremic dogs, we found them to give, in the earlier hours of the experiments, a very strong (1/10,000) reaction against the anti-liver serum, and none, or 1:10 at most, against the anti-blood serum, though the latter reacts in dilutions of 1:100,000 against blood.

TABLE 2. PRECIPITIN REACTIONS.
URINARY PROTEINS.

	1	1:10	1:100	1:1000	1:10,000	1:100,000
Anti-blood serum ...	0?	0	0	0	0	0
Anti-liver serum ...	++++	+++	++	++	+	+

	1	1:10	1:100	1:1000	1:10,000
Anti-blood serum....	++++	+++	++	++	+
Anti-liver serum....	++++	+++	++	++	+

This urinary protein then, is not a serum protein, and is, or contains, liver protein. Using similar technique with spleen, brain, muscle and kidney, we found in these urines, protein from spleen and muscle—but none from brain or kidney. A further refinement of the precipitin test is made by adding to the bivalent anti-liver serum (anti-blood and anti-liver), dog blood in sufficient quantity to absorb the anti-blood precipitins. This serum then does not react against blood, but continues to react in high dilution against liver extract (antigen), and against the urinary proteins.

TABLE 3.

	Spleen			Brain		
	Ur. Pro.	Dog Ser.	Spleen	Ur. Pro.	Dog Ser.	Brain
1/10	+	+	+	0	?	?
1/100	+	+	+	0	0	0
1/1,000	+	+	+	0	0	0
1/10,000	+	+	+	0	0	0
1/100,000	+	0	+	0	0	0

	Muscle			Kidney		
	Ur. Pro.	Dog Ser.	Muscle	Ur. Pro.	Dog Ser.	Kidney
1/10	+	+	+	0	+	+
1/100	0	+	+	0	+	0
1/1,000	0	+	+	0	0	0
1/10,000	0	+	0	0	0	0
1/100,000	0	0	0	0	0	0

What, then, is the mechanism of nephritis? It is our belief that the normal kidney is permeable only to those proteins which are not normal constituents of the blood. Foreign protein is excreted promptly and possibly quantitatively by a normal kidney (egg—foreign sera, etc.)—and the unmodified idea that the normal kidney is a barrier to the passage of protein must be aban-

done. Observation of orthostatic albuminurias as well as nephritis convinces us that the protein appears in the urine because the general toxic process to which renal damage has been ascribed has so altered those proteins that in structure, perhaps, they are no longer proteins normal to that organism. Structurally we cannot state to what degree a protein must alter before becoming foreign. Immunologically these proteins remain specific and may also be so identified. Following this line of reasoning, we have injected intravenously into normal dogs the entire water soluble extract of uremic dogs' liver. When the process of extraction is carefully done, preventing decomposition from temperature or bacteria, there appears a proteinuria which is composed entirely of liver protein—and the serum protein, when not too greatly modified in the process of extraction, remains in the circulation.

TABLE 4.

Anti-Liver Serum	Anti-Blood Serum	100 c. c. Liver Extract Injec. 1 hr.
+	+	10
+	?	100
+	0	1,000
+	0	10,000
?	0	100,000

This, then, is not only proof of the hypothesis, but gives a technique for the preparation of pure tissue and organ proteins. Naturally, serum protein constitutes the bulk of that which any nephritic passes—and the mechanism of its excretion we believe to be as follows: In nephritis there is a marked change in the colloidal state of protein, induced by changes in oxidative function of the tissues, alterations in osmotic pressure, water balance, salt balance and surface tension. A very large amount of protein leaves the vessels, and passes into the intercellular spaces (this occurs not only in nephritis, but in many abnormal states and is probably seen in the condition called cloudy swelling.) This is a well-known phenomenon and the loss may be as high as 35 per cent. of blood protein. In the lymph spaces this serum protein meets conditions dissimilar to those necessary for preservation of its integrity and it undergoes those changes, due to factors mentioned above and is then carried in the lymph to the thoracic duct and returned to the circulation, where it is a foreign protein and is promptly excreted.

The constant and marked variation in the

proportion of globulin to albumin seen in orthostatic and various non-nephritic albuminurias, as compared to the nephritic ratio, might be explained on the ground of differing resistance of the two types of protein to the disturbing factors—so in the early or functional diseases where the damage is slight the globulin molecule is relatively more disintegrated, whereas in nephritis, the toxicity of the process is so high that the general damage is much greater and the albumin molecule escapes from the circulation as well, while the globulin, being more resistant, is less easily transformed and is to a less degree returned to the blood as a foreign protein.

In concluding we wish to re-emphasize the fact that the clinical condition called nephritis is not due to and cannot be produced by renal damage. New facts emphasize the general tissue aspect of the injury and of the pathologic function. Edema clearly is not due to inability of kidneys to excrete fluids, but to hydrophilic tissue changes which combine the fluid, extra vascularly as well as intravascularly—so that there is no water available for excretion. This is well demonstrated by the intradermal absorption test of Aldrich and McClure, which shows how firmly the fluids are held in combination in tissues—and how, preceding diureses, the tissue thirst lessens—so that when water is available for excretion, it is excreted. This is further shown by the effects of diuretics, such as the purine bases, the alkalis and novasural. Their action is definitely not in any respect renal—but is to change the allocation of fluids and make them available for excretion. Similarly, uremia and hypertension must be ascribed respectively to brain and capillary changes, due to the general toxic process, not to unexcreted metabolites. And lastly we wish to call attention to possible fallacies in interpretation of blood chemistry figures. Basically we are interested in the tissue chemistry values, for it is here that the true courses of symptoms lie. In chronic cases the blood chemistry figures may and usually do give a true index of tissue values, but in acute conditions, as in our experimental uremia where there is really a large tissue calcium, the high blood chemistry figures may be only due to an outpouring of these substances from the tissues on the way to execution.

SURGICAL CLINIC COOK COUNTY
HOSPITAL *FREDERICH G. DYAS, M. D.,
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Carcinoma of the breast is a condition which is encountered by every practitioner either in the operative or non-operative state. The conditions for which the patient seeks relief are two: first, the removal of the tumor, second, the relief of suffering. There is nothing greatly to be added to the technic of the removal of the tumor except to state that the incision should be so placed that the resulting scar will in no wise interfere with the motion of the arm.

The use of the cautery or of the radium knife is of doubtful benefit. The great consideration being the removal *en bloc* of the entire mass together with the fat and glands in the axilla. The cases which seek relief from suffering resulting from recurrence in the axilla with consequent shutting off of the lymph and venous currents require something more than the administration of ever increasing doses of morphin, because this does not control the pain. Those cases in which the arm reaches the size of the thigh and has to be carried about on a pillow can be best relieved by the blocking off the brachial plexus by quinine and urea or by cutting down on the cords of the plexus and doing a resection. This relieves the pain; the swelling may be reduced by the so-called Kondoleon operation which consists of making multiple incisions through the skin down to the periosteum through which are passed twisted strands of catgut. This produces a means of exit for the accumulated lymph and serum which reduces the immense size of the arm in a short time, saturating the dressings.

While it is true that this method involves the loss of motor function of the arm it is of no great consequence to the patient because the arm is useless on account of its size and the patient is glad to be relieved of the suffering.

This method has been tried out in a number of cases and has given the best results of any plan so far advanced for the removal of this terrible suffering and edema.

In the limited space available for discussion

of the operative treatment of hyperthyroidism it is possible to touch only on a very few points. First, there is no real cure for hyperthyroidism at the present time except the operative removal of a large portion of the hypertrophical gland. It is perfectly true that temporary improvement may be noted after almost any type of treatment or whether no treatment at all is instituted but the recurrence of symptoms is certain without operative removal of a portion of each lobe. The preparation for operation is of the greatest importance and should include a prolonged rest in bed, an ice bag over the heart and digitalis. The choice of an anesthesia is important. In a very large number of cases the best results have been seen following ethylene gas anaesthesia without the use of local agents.

In a large tumor, the horse-shoe shaped incision of Kocher gives the best exposure of the gland while in the small thyroid, a simple transverse incision gives plenty of access to the gland. After so exposing the tumor the strap muscles are separated in midline, the most essential part of the technic is the complete denudation of each lobe before applying the clamps or attempting to remove any part of it. It will be found that if this method is followed that hemorrhage can be controlled by simple upward pressure of the hand behind the lateral lobe. Ordinarily not more than 4 or 6 Kocher forceps are necessary for the control of the hemorrhage. Great care should be given to ligation as post operative hemorrhage may easily occur if the ligation be not properly done. Because of the sudden release of the large amount of thyroid secretion and its constant absorption it is necessary to provide drainage, contrary to the theory advanced by others that it is not necessary. It is a matter of common observation that there is always a very marked increase in all symptoms of hyperthyroidism immediately following the operation. This of course is because of the rapid absorption from the cut surface of the gland. Drainage assists very materially in reducing the amount of this absorption and in doubtful cases it may seem to be the deciding factor between success and failure. The skin is closed merely by skin clips which make a very beautiful coaptation. The resulting scar is scarcely visible after a year.

*Clinic given, May 10, 1928, during Annual Meeting of Illinois State Medical Society.

A MEDICAL MARTYR OF THE EIGHTEEN SIXTIES*

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CHAMPAIGN, ILL.

I have been in practice long enough to bear witness to the fact that previous to about the beginning of the eighth decade of the last century, the profession as a whole had no working knowledge of asepsis and antisepsis and very little working knowledge of disease prevention. In the first half of the decade of the sixties occurred the American Civil War with its terrible harvest of disease, death and destruction. In that struggle many thousands died from diseases that we now know could have been prevented and furthermore many, many thousands perished from wounds that modern surgery would have healed and restored their host to normal life.

For illustration, the company in which I served reached the enemy's country with a company of about ninety members. Of these seven either fell in battle or died from wounds or injuries, and strange to say, exactly seven perished from typhoid fever. That is to say, typhoid fever—today a universally recognized preventable disease—exactd as heavy a death toll from my companions, my comrades, as did the always daring Confederate soldier with his deadly musket which he knew so well how to use.

Fortunately, the Civil War ended in 1865. About that same time Louis Pasteur of France began to reveal the causation of infectious diseases and pointing out how these could be prevented, and in England Joseph Lister was working along lines that later gave us the clean surgery of which we today are the fortunate possessors.

In that same year of our Lord, 1865, occurred the death of one who had spent his professional life striving to check the inroads of a terrible infection to which he fell a victim. I refer to Ignace Phillip Semmelweiss, a Hungarian. He was born in a locality that later became a part of the city of Buda Pest. He was born in 1818. His father was well-to-do, gave him a good education which was finished at the University of Vienna. Very soon after, he entered the medical

department of that institution and graduated from there in 1844.

Meanwhile he had been very much interested in obstetrics, prosecuted a study of that branch and in the Fall of 1844 was made a Master of Midwifery. He at once was given a position in the great lying-in Hospital of Vienna. The Hospital of Vienna had its beginning a hundred and fifty years ago under the auspices of the famous Maria Theresa of Austria. She was greatly interested in the parturient female. Perhaps one reason for this was the fact that she herself was the mother of sixteen children, one of whom was the unfortunate Marie Antoinette.

She determined that the new hospital should have a large, commodious lying-in department but sad to say, in the midst of it all she sickened and died. But her son and successor, Joseph II of Austria, carried the work on and in 1784 the great Hospital was completed. There were large additions made to the lying-in department in 1840 and it became and yet remains the largest lying-in institution in the world. Semmelweiss was given work there.

It was divided into two compartments known as the first and second divisions. The first division was turned over to medical students, all of whom or most all of whom were young men. Division Two was turned over to obstetrical students, most all of whom were young women.

I should say that in that period puerperal fever was prevalent the world over and most all regarded it as an essential disease, that it came from some peculiar atmospheric and telluric conditions.

Semmelweiss noticed that there were about three times as many cases in Division One as in Division Two. He began to look for the cause. The male students were required to do a great deal of anatomical work. The students of midwifery did very little. After dissecting, they washed their hands as thoroughly as they could in soap and water. Often they repaired immediately to the wards and examined the parturient women. He noticed that while the soap and water in a way cleaned their hands, they still had a cadaverous smell, and in looking around for something to kill that, he settled on a solution of chloride of lime. It seemed to kill the smell effectually. He got them all to use it and in a

*Read before the Section on Medicine, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

little time the cases of puerperal fever deceased surprisingly.

He worked on until he was sure of himself and then he made known what he had discovered. He got little sympathy from the older practitioners. Dr. Kline, who had charge of it all, I suppose thought Semmelweiss was a young upstart. But the younger men took notice, three in particular: Rokisteinsky, Skoda and Hebra. Rokitansky later obtained a world-wide reputation as a pathologist. Skoda became eminent in the field of auscultation and percussion. Likewise Hebra became eminent in the field of dermatology.

But at that time they were young and they hadn't a great deal of influence. Later they came to be very influential and did much to give the medical department of the University of Vienna its world-wide reputation.

Well, time went on. Semmelweiss was very enthusiastic, very earnest, perhaps indiscreet. He didn't make the headway he thought he ought to. Among those whom you might call converts to his doctrine were two tragic cases. Dr. Kolletschka, who was Professor of Medical Therapeutics, did more or less dissecting. In dissecting a subject one day, his assistant pricked him with a knife and the lymphatics became infected and later he died with cerebritis, meningitis, pleuritis and so on. Semmelweiss was convinced that it was the same trouble that was killing the women.

A Dr. Michaelis of Kiel became a convert. He had charge of a lying-in institution at Kiel. He got to thinking. He was a man of very sensitive make-up. He got to thinking of how many poor women he had, you might say, murdered by carrying infection and it affected him so that he committed suicide.

Time went on. Semmelweiss preached his doctrine, I'm afraid out of season as well as in season. He was so earnest, so enthusiastic that he became a sort of medical St. John, preaching not in the wilderness of Judea but in a wilderness of non-appreciation.

The two years for which he had been appointed expired but he had so many enemies that instead of promoting him, he was given an inferior position. It vexed him. He resigned and went to Budapest, the city of his nativity. In due time he was made Professor of Obstetrics in the University of Pest. Later on he was given charge of the lying-in department of the Hospital of Saint

Rocus. The field was very much more limited than it was at Vienna but still he worked on.

He found in the Hospital of Saint Rocus a number of cases of puerperal fever. They couldn't understand it. They had no medical students with dirty hands, but he found the cases were all thrown in together—pus cases, dirty surgical cases, etc. He separated them, got the parturient women in wards to themselves and the puerperal fever ceased.

Meantime he was talking and writing; he published a work, sent it to the prominent men all over Europe. I said a while ago that they all believed it was an essential disease. When I was a medical student in the 1860's, Philadelphia was the medical center of the United States and the two great obstetrical lights in this country were Hugh L. Hodge of the University of Pennsylvania and Charles D. Meigs of Jefferson Medical College. Neither one of these men took any stock in infection.

In 1843 Oliver Wendell Holmes, then a young man, became convinced that puerperal fever was an infectious disease. He made a study of it and wrote a most excellent paper but it was buried in a New England medical journal that didn't have a large circulation. But Meigs, one of the great obstetricians of Philadelphia, saw it and criticized it almost viciously. Fortunately Dr. Holmes lived long enough to see his idea accepted by the medical world.

Time went on. I will not weary you with details. Semmelweiss married and had a happy home but one day his wife noticed that he acted peculiarly. It grew on him. She called in medical friends and they found that he was insane. He was sent to an insane institution in Vienna. In a little while he sickened and died. His dead body was taken through the door, and over the threshold of which he had so often crossed, into the same dead house where he had made scores and scores of postmortems, and a little later the knife and saw revealed the fact that he had died with meningitis, pleuritis, etc., all coming from an infected index finger that he had sustained in a gynecological operation, perhaps, when his mind began to give way.

Thus it came about that the same guilty microbe that had killed so many innocent women in that great lying-in hospital took the life of their best friend and would-be protector, was likewise the same deadly streptococcus that, like

the Sword of another Damocles, hung over every parturient couch the world over.

This tremendously tragic fact Semmelweiss would fain have conveyed to his own, the medical profession, but sad to say, his own received him not. But "Truth crushed to earth shall rise again," for Old Father Time has a way all his own of setting these matters right and today the whole medical world is united in giving the long-sighted, long-neglected Semmelweiss the very highest place among its immortals.

I will say one thing in closing. It was not the dead body alone that was an infecting material. Any putrescent animal matter would cause puerperal fever. Semmelweiss believed that he had made that discovery.

Book Notes

ACUTE INFECTIOUS DISEASES. By J. Frank Shamberg, M. D., and John A. Kolmer, M. D. Second edition, thoroughly revised. Illustrated with 161 engravings and 27 full page plates. Philadelphia. Lea & Febiger. 1928. Price, \$10.00, net.

This edition has been extensively revised; a number of new chapters on diseases not formerly included have been added. The chapter on diphtheria has been rewritten and new chapters on the prevention of diphtheria, Vincent's Angina, serum naphylaxis erysipelas, mumps, whooping cough, cerebrospinal meningitis, the "fourth disease" and erythema infectiosum have been added.

SERUM DIAGNOSIS. BY COMPLIMENT-FIXATION. By John A. Kolmer, M. D. Illustrated with 65 engravings. Philadelphia. Lea & Febiger. 1928. Price \$7.00 net.

This work has special reference to syphilis, the principles, technique and clinical applications of serum diagnosis by compliment fixation. This work is essentially a summary of clinical and laboratory investigation.

THROMBO-ANGIITIS OBLITERANS—CLINICAL, PHYSIOLOGIC AND PATHOLOGIC STUDIES. By George E. Brown, M. D., and Edgar V. Allen, M. D., Division of Medicine, Mayo Clinic, Collaborating in Pathology with Howard R. Mahorner, M. D., Fellow in Surgery, The Mayo Foundation. 12mo. of 219 pages with 62 illustrations. Philadelphia and London: W. B. Saunders Company. 1928. Cloth, \$3.00 net.

This work is based on the authors' observation of more than 300 cases of thrombo-angiitis obliterans in the Mayo Clinic in the years 1922 to 1927, inclusive.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 12, Number 3. (New York number, November, 1928.) Octavo of 334 pages with 64 illustrations.

Per Clinic year, July, 1928, to May, 1929. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1928.

The contributors to this number are Drs. Archer Baldwin, Biloon, Blumgarten, Bullowa, Crohn, Elwyn, Fellows, Foster, Frankfeldt, Goldbloom, Goldstein, Graves, Guion, Harris, Held, Holland, Hubener, Meara, Ratner, Ringer, Rosenbluth, Schick, Spencer, Stillman, Stimson.

A TEXT-BOOK OF PATHOLOGY. By William G. MacCallum, M. D., Professor of Pathology and Bacteriology. Johns Hopkins University. Fourth edition, thoroughly revised. Octavo volume of 1,177 pages with 606 original illustrations. Philadelphia and London: W. B. Saunders Company. 1912. Cloth, \$10.00 net.

In this edition a complete revision has been attempted and almost every chapter has been in part or completely rewritten. All advances in pathology have been collated and brought up to date in this edition.

ROENTGENOLOGY. ITS EARLY HISTORY, SOME BASIC PHYSICAL PRINCIPLES AND THE PROTECTIVE MEASURES. By G. W. C. Kaye. With forty-nine illustrations. New York. Paul B. Hoeber. Price, \$2.00 net.

GENERAL INDEX OF MODERN MEDICINE. ITS THEORY AND PRACTICE. Edited by Sir William Osler, Bart., M. D. Third edition, thoroughly revised re-edited by Thomas McCrae, M. D. Philadelphia. Lea & Febiger. 1928. Price, \$1.00.

THE INFANT AND YOUNG CHILD. Its care and feeding from birth until school age. A manual for mothers. By John Lovett Morse, M. D., Edwin T. Wyman, M. D., and Lewis Webb Hill, M. D., of Harvard Medical School, and Children's Hospital, Boston, Mass. 12mo. of 299 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1929. Cloth, \$2.00 net.

In this book the writers have endeavored to tell mothers what they should know in order to intelligently feed and care for their children from the time they are born until they are six years old.

THE ADRENALS, THEIR PHYSIOLOGY, PATHOLOGY AND DISEASES. By Max. A. Goldzieher, M. D. New York. The Macmillan Company. 1929. Price, \$7.50.

This book gives a full monographic description of the adrenal glands, including their normal and pathological morphology and functions, the interpretation of morphological changes and functional disturbances and their relation to clinical medicine.

HISTORY OF MEDICINE, with Medical Chronology, Suggestions for Study and Bibliographic Data by Fielding H. Garrison, M. D., Lt.-Col. Medical Corps, U. S. Army, Surgeon-General's Office, Washington, D. C. Fourth Edition. Revised and enlarged. Octavo of 996 pages, with 286 portraits and other illustrations.

W. B. Saunders Company, Philadelphia and London, 1929. Cloth, \$12.00 net.

In this volume the author has featured the various new departures in recent medicine. In addition to the new material in the term of chapters, a section on medicine in pre-historic times has been added.

The student who wishes to know the important happenings in a given year, Quinquennium, decade, or other period will now find them available.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 8, No. 6. (Pacific Coast Surgical Association Number—December, 1928.) 277 pages with 118 illustrations, including Complete Index to volume 8. Per Clinic year (February, 1928, to December, 1928). Paper, \$12.00; Cloth, \$16.00. Philadelphia and London.

The contributors to this number are Drs. Brown, Berger, Caldbick, Cecil, Cochran, Delprat, Eloesser, Else, Gilchreest, Hinnman, Holden, Holder, Holman, Lamson, Lobingier, Lockwood, Mason, Matthews, John B. & Wm. B. McNerthney, Millinger, Morrison, Osborne, Phillips, Rixford, Rockey, Searls, Sherry, Smith, Swift, Terry, Turner, Weeks, Woolsey.

PEDIATRICS. By Harry Monroe McClenahan, M.D. 230 illustrations. Philadelphia and London. J. B. Lippincott & Co, 1929. Price, \$6.00.

This work presents a modern clinical picture of the diagnosis, treatment and management of diseases of infants and children under conditions encountered by the family physician or general practitioner. The work contains a chapter on normal human infant from birth to adolescence, giving suggestions as to training and feeding. A large number of the illustrations are original.

INTERNATIONAL CLINICS. A quarterly of illustrated clinical lectures and especially prepared original articles on subjects pertaining to all the specialties and other topics of interest to students and practitioners by leading members of the medical profession throughout the world. Volume IV, Thirty-eighth Series, 1928. Philadelphia and London. J. B. Lippincott Company, 1928. Price \$....

HAND BOOK OF MICROSCOPICAL TECHNIQUE. Edited by C. E. McClung, Ph.D., with forty-three illustrations. New York. Paul B. Hoeber, Inc., 1929. Price, \$8.00 net delivered.

This book is intended for workers in both animal and plant tissues.

The text is divided into two parts. Part I outlines approved methods for the inexperienced worker and Part II methods for the experienced investigator. By a system of cross-reference between the two parts, all unnecessary repetitions are avoided.

This book was prepared for *practical* use. Therefore all historical methods are eliminated and also all bibliography, *except* such as is necessary to a complete understanding of indicated methods.

The book should be of interest to workers in bac-

teriology, biology, botany, cytology, embryology, histology and pathology, but it must not be overlooked that the general methods presented in Part I make it useful to every student of microscopic anatomy.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 12, Number 4. (Philadelphia Number, January, 1929.) Octavo of 297 pages with 30 illustrations. Per Clinic year, July, 1928, to May, 1929. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1929.

The contributors to this number are Doctors Andrews, Arnett, Bartle, Beardwood, Bockus, Collins, Cooper, Eliason, Farley, Fitz-Hugh, Jr., Gorden, Hartmann, Hitzrot, Jump, Keeler, Kern, Klein, McCrae, Miller, Mohler, Nissler, Norris, Pelouze, Pepper, Reh-fuss, Richardson, Riesman, Rose, Sailer, Schnabel, Strecker, Talley.

EVIDENCE ENOUGH

Mother—"Come here, Johnny, I have some good news for you."

Johnny (without enthusiasm)—"Yes, I know, brother is home from college."

Mother—"Yes, but how did you know?"

Johnny—"My bank won't rattle any more."

TACT

Smith went every night to a pool room to play for ten cents a point. One night Mrs. Smith was awakened by loud and persistent knocking at her door. Putting her head out of the window she asked: "Who is it? What do you want?"

"Does Mrs. Smith live here?" asked the man on the step.

"I am Mrs. Smith," she replied.

"Well, I'm Mr. Kelly from the pool room up the street. Your husband shoots pool there every evening."

"Yes, I know that."

"He was shooting tonight and lost \$1,500."

"My husband lost \$1,500 shooting pool? He ought to drop dead!"

"That's just what he did, madam. Good night!"

MARTYRS TO MEDICAL SCIENCE

The announcement of the death of Dr. William Alexander Young at Accra, on the African Gold Coast, of yellow fever, marks the third scientist that this scourge of the tropics has claimed within eight months. The medical world is still dazed by the death of Dr. Hideyo Noguchi of the Rockefeller Institute of Medical Research, one of the world's greatest bacteriologists, who died in the same place ten days ago. The first of the martyr trio, Dr. Adrian Stokes, a brilliant young British pathologist, who won an enviable reputation during the World War, met his death while working on yellow fever at the laboratory of the Rockefeller Foundation at Lagos, Nigeria, last September.—*Science Service.*

ARTHROPLASTY

To the patient with bony ankylosis of the knee, a functioning joint with adequate mobility and stability is his object in seeking an arthroplastic operation. Whether or not the surgeon follows anatomical contours in modeling the new joint does not interest him, so long as the joint *functions*. It has been found by Allison and Brooks that it is absolutely impossible to duplicate experimentally, or in surgically constructed joints at the knee, the normal gliding of the articular bony surfaces. This being true, and as attempts to approximate the contour of the normal joint are so often followed by lateral instability, I have devised a technic based on well known mechanical principles which ignores the normal contours of the joint, and provides both mobility and stability. It has given excellent results in ten cases.—Albee, F. H.: Original Features in Arthroplasty of the Knee with Improved Prognosis. *Surg. Gynec. Obst.*, September, 1928.

SYPHILIS CONSTANTLY INCREASING IN AMERICA

Philadelphia, Sept. 4.—The American people are gradually becoming more and more “syphilized” reports Dr. Charles W. Burr, professor of mental diseases at the University of Pennsylvania, basing his opinion on his many years’ experience with patients suffering from the end conditions of this disease.

Change in the type of immigration during the last few generations and the letting down of social standards, particularly those which placed a bar between adolescent boys and girls, are the causes to which Dr. Burr attributes the increase.

Immigrants from eastern Europe where the disease is more prevalent have brought it into this country in large numbers. Modern promiscuity which has developed since the war is playing a large part in the work of “syphilizing” the country.

Society Proceedings

ADAMS COUNTY

The annual social meeting was held January 14, 1929, at the Elks’ Club and was preceded by a dinner served at 8:00 P. M. Forty-six members, wives and guests were present. During the meal music was provided by Malambri’s orchestra. Dr. Walter Stevenson was toastmaster of the occasion and after a brief talk he introduced the president of the society, Dr. J. W. E. Bitter. Following this, Dr. Harold Swanberg was called upon for a few remarks and then the meeting was turned over to the guest of the occasion, Dr. Fred S. O’Hara, of Springfield, Illinois. Dr. O’Hara gave a talk illustrated with motion pictures concerning a recent trip he made to Central America. Following the talk the evening was spent in dancing and cards.

HAROLD SWANBERG, M. D., Secretary.

CHAMPAIGN COUNTY

At the annual meeting of the Champaign County Medical Society held at the Inman Hotel, the following officers were elected:

President, E. L. Draper; vice-president, P. C. Casto; secretary and treasurer, Glen R. Ingram; delegate to state convention, C. F. Newcomb; alternate, C. George Appelle; censors, E. D. Wise, C. F. Newcomb and W. E. Schowengerdt; medical defense, J. C. Dallenbach.

GLEN R. INGRAM, M. D.

CHRISTIAN COUNTY

On Thursday evening, January 17, the Christian County Medical Society met at the Country Club at Taylorville for reorganization and such business as might be brought before the meeting.

Dinner was served at 6:30 and those present did justice to all the good things set before them. The weather, however, was very bad and the attendance was small, only about one-third of the members being able to get out on account of the dense fog which made driving dangerous.

After dinner the business of the evening was taken up and the first was election of officers for the new year. Results as follows:

President, J. F. Miller of Palmer; vice-president, H. M. Wolfe, Taylorville; secretary-treasurer, D. D. Barr (this being his twentieth election to this office); delegate, G. L. Armstrong, Taylorville; alternate, T. A. Lawler, Taylorville; legal committee, J. N. Nelms, Taylorville; public health, J. H. Miller, Pana; W. H. Mercer, Taylorville; censors: Lawler, Mercer, Nelms, all of Taylorville.

Dr. Quitman U. Newell of Washington University, St. Louis, made a most excellent address on Cæsarian Section.

Dr. L. D. Darner of Granite City was a visitor with Dr. Newell and we appreciated his presence with us.

At a late hour the meeting adjourned and the only regrets were that the attendance could not have been greater.

D. D. BARR.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, January 9, 1929.

- 1. Recent Advances in the Study of Bronchial Asthma. Leon Unger
Discussion—S. M. Feinberg, I. Pilot.

- 2. The Cause and Treatment of Hypertension
..... Ralph H. Major, Kansas City, Kansas
Discussion—N. S. Davis, 3rd; Robert S. Berghoff, Edmund Andrews, Edward J. Steiglit.

Regular Meeting, January 16, 1929.

- 1. The So-Called Traumatic Neurosis.
..... Charles F. Read
Discussion—George W. Hall, James C. Gill
- 2. The Present Day Treatment of Placenta Previa. J. P. Grenhill

Discussion—William C. Danforth, Frederick H. Falls
Joint Meeting Chicago Medical Society and the
Douglas Park Branch, January 23, 1929.

1. The Value of Bronchoscopy in Disease of the Lung.....Jacob Lifschutz
Discussion—S. Salinger.
 2. Indications for Surgery in Disease of the Lung
.....Max Biesenthal
 3. Surgical Procedures in Inflammatory Condi-
tions of the Lung (Moving Pictures).....
.....Ralph Bettman
- Discussion opened by Ethan Allen Fray, Frederick Tice.

Marriages

BENGT NORMAN BENGTON, Chicago, to Miss
Martha Timke of Elmhurst, Ill., Oct. 22, 1928.

MALCOLM A. KEMPER, Evanston, Ill., to Miss
Grace Caroline Larsen, in Chicago, Dec. 22,
1928.

MAURICE ELIAS MESIROW to Mme. Irene Pav-
loska, both of Chicago, Dec. 29, 1928.

Personals

Dr. Paul M. Cliver has been elected president
of the Hyde Park Kiwanis Club for 1929.

Dr. Frank L. Rector has taken up his duties
as full-time executive secretary of the Chicago
Medical Society.

Dr. Morgan G. Carpenter has been appointed
factory surgeon of the Elgin National Watch
Company, Elgin.

Joseph Purvis became superintendent of the
Rogers Park Hospital, January 1.

Dr. William A. Claxton, Miami, Fla., has
been appointed health officer of Morgan County
to succeed Dr. Warner H. Newcomb, resigned.

Dr. Milton E. Blanchard has been appointed
city health officer of Marseilles, succeeding Dr.
Ernest Donald, resigned.

Dr. Joseph S. Eisenstaedt has been appointed
consultant in genito-urinary surgery at the U. S.
Veterans' Bureau Hospital in Maywood, Ill.

Dr. Alfred Larson, Savannah, Ga., has been
appointed resident house physician at the Bill-
ings Memorial Hospital and instructor in medi-
cine at the University of Chicago.

After about twelve years' service, Dr. Egil T.
Olsen has resigned as superintendent of the
Englewood Hospital and will be succeeded by
Mr. A. E. Paul. Dr. Olsen will engage in hos-
pital consultation work.

Dr. Daniel B. Brewer, Fairbury, will have
completed his fifty-fifth year in practice in that

community in March; although 85 years of age,
he walks to his office daily. There were said to
have been thirteen physicians in Fairbury when
Dr. Brewer began practice in 1873, of whom he
is the sole survivor.

Dr. Bernard Portis address the Chicago Pedi-
atric Society, January 15, at the Medical and
Dental Arts Club, 185 North Wabash Avenue,
on "Clinical and Surgical Observation of Acute
Appendicitis in Children," and Dr. Mynie G.
Peterman, Milwaukee, on "Suprarenal Insuffi-
ciency in Children."

Dr. Arnold H. Kegel, commissioner of health,
addressed four branches of the Chicago Medical
Society, during January, on the subject of co-
operation between the Society, the Department
of Health and the Board of Education, for the
correction of defects found in school children.

News Notes

—Dr. Harry Culver will address the Chicago
Society of Industrial Medicine and Surgery at
the Medical and Dental Arts Club, February
11, on trauma as a factor in the cause of genito-
urinary diseases.

—The state department of health, with the
New Year, discontinued the publication of the
Illinois Health News and began the publication
of the biweekly *Illinois Health Messenger*.

—The Chicago Society of Internal Medicine
was addressed at the City Club, January 28,
by Drs. Carroll C. L. Birch on "The Throm-
bocyte Functional Test"; Louis Leiter on "Ex-
perimental Edema," and Don C. Sutton on me-
chanism of production of cardiac pain.

—The Chicago Tuberculosis Society will meet,
February 14, at the Medical and Dental Arts
Club; Dr. Lindon Seed will speak on "Thy-
rotoxicosis and Pulmonary Tuberculosis," and
Drs. Jerome R. Head and Imas P. Rice on
"Thoracoscopic Pneumolysis."

—Dr. Abraham Levinson gave an address at
the library of the University of Illinois Col-
lege of Medicine, 1817 West Polk Street, Janu-
ary 16, on pioneers in pediatrics, illustrated with
photographs, prints, medals and books, which
will remain on display at the library for some
time.

—The Chicago Council of Medical Women
was addressed, February 1, at the Medical and

Dental Arts Building by Dr. Clara G. Gottschalk on "The Hühner Test in the Diagnosis of Sterility," and by Dr. Bertha Van Hoosen on "The Rubin Test as an Aid in the Diagnosis of Sterility."

—The Institute of Medicine of Chicago and the University of Chicago School of Medicine jointly sponsored a lecture at the Albert Merritt Billings Hospital, January 24, by Col. L. W. Harrison of the University of London Medical School on "Control of Venereal Disease in Great Britain."

—Prof. Georg Sarton, Sc.D., lecturer on the history of science, Harvard University, lectured at the University of Chicago Clinics, January 21-22, on "Science in the Middle Ages with Special Reference to Arabic and Hebrew Writings" and "Teaching of History of Science."

—The guest of honor at the annual banquet of the St. Clair County Medical Society, East St. Louis, was Dr. Malcolm L. Harris, Chicago, President Elect of the American Medical Association; Dr. Harvey Smith was elected president of the society for the ensuing year. Editor of the *Bulletin* of the St. Clair County Medical Society, Dr. Walter W. Boyne, has resigned, having been elected county coroner.

—Dr. Edward B. Heckel, Pittsburgh, chairman of the Board of Trustees of the American Medical Association, was guest of honor at the annual meeting of the Chicago Ophthalmological Society, January 21; the subject of Dr. Heckel's address was "The Exclusive Use of Iced Normal Salt Solution in the Treatment of Gonococcal Purulent Conjunctivitis." The program included music and a travelogue by Dr. Carl O. Schneider.

—The new Women's and Children's Hospital of Chicago at Ashland and Maypole avenues, was officially opened, January 15. The hospital was founded about sixty-six years ago by Dr. Mary Thompson and moved in 1885 to 1712 West Adams Street, where it remained until the new building was opened. It is said to be the only hospital in the Middle West whose staff is made up entirely of women physicians. It is nonsectarian and does a great deal of charitable work.

—The Chicago State Hospital is making a study of the merits of the ketogenic diet and

acid-producing drugs in the treatment of epilepsy. Eighty patients are under treatment; a special dietitian has charge of the menus. The diet is such that the patients do not object to it. The nursing of these patients is supervised by nurses from the state school for psychiatric nursing, and laboratory work to determine the changes in metabolism is carried on. It will be several months before the study is completed.

—At the thirteenth annual meeting of the board of governors of the Institute of Medicine of Chicago, December 12, 1928, Dr. Ludvig Hektoen was elected president for the ensuing year. The institute met at the City Club, January 25, with the Society of Medical History of Chicago, when Drs. Edmund Andrews gave an illustrated address on "Origins of Greek Medicine"; Benjamin Barker Beeson on "Corvisart: His Life and Work," and William S. Miller of the University of Wisconsin Medical School, Madison, on "John D. Godman, Anatomist, Naturalist, and Medical Editor."

—The DuPage County Medical Society entertained their wives and the nurses of the county at a banquet and dance at the Goodie Shop of Glen Ellyn on the evening of January 17. The annual election of officers was also held, with Dr. Walter S. Bebb of Hinsdale, elected as president for 1929, Dr. J. H. Raach of Wheaton, vice-president, Dr. W. L. Migely of Naperville, secretary and treasurer.

—Organization of the Chicago public school system into about forty health districts, with a centrally located headquarters in each, is being planned. The initial move will be taken soon, when a health curriculum, now being prepared, is submitted for adoption and a recommendation made for location of one of the proposed headquarters. A report of organized school health work in Toronto, Canada, shows that 85 per cent of the physical defects in children are cured or arrested. A survey of health conditions in Chicago disclosed that 437,000 children are suffering from such defects. The purpose is to decentralize the work now being done from the health department. Several welfare organizations, working as a unit, probably will also have offices in the same buildings with the health district headquarters to further co-operation of health and social work.

Deaths

SERGIVS FELIX ARQUIN, Chicago; University of Illinois College of Medicine, Chicago, 1928; intern, Cook County Hospital; aged 23; died, Dec. 8, 1928, of epidemic cerebrospinal meningitis.

ERIC KLINE BARTHOLOMEW, Chicago; Medical Department of the University of Illinois, Chicago, 1907; member of the American College of Physicians; assistant clinical professor of medicine, Loyola University School of Medicine; served during the World War; on the staffs of the Lutheran Memorial Hospital and St. Mary of Nazareth Hospital; aged 47; died, Dec. 18, 1928, of epidemic cerebrospinal meningitis contracted from a patient.

GEORGE EDMUND BLACKHAM, Chicago; University of Buffalo (N. Y.) School of Medicine, 1870; member of the Medical Society of the State of New York; Civil War veteran; formerly on the staff of the Brooks Memorial Hospital, Dunkirk; aged 82; died, Dec. 28, 1928, at the Chicago Memorial Hospital, of pneumonia.

DAVID A. BLAIR, Peoria, Ill.; Barnes Medical College, St. Louis, 1897; on the staff of the Peoria State Hospital; died, October 30, of heart disease.

WILLIAM C. BRINKERHOFF, Chicago; College of Physicians and Surgeons, Chicago, 1886; aged 67; died, January 8, of carcinoma of the pancreas and gall-bladder disease.

ETTA MAY BRYSON, Rock Falls, Ill.; Chicago College of Medicine and Surgery, 1913; member of the Illinois State Medical Society; aged 46; died, Dec. 20, 1928, of pneumonia.

THOMAS WILSON COMBS, Chicago; Pulte Medical College, Cincinnati, 1885; aged 72; died Dec. 8, 1928, of prostatic disease.

EDWARD GORDON CROMWELL, Henry, Ill.; Chicago Homeopathic Medical College, 1896; Hahnemann Medical College and Hospital, Chicago, 1905; part owner of the Drs. Cromwell and Cogshall Hospital, aged 52; died, Dec. 30, 1928, of lobar pneumonia and pleurisy with effusion.

MARGARET DAVIDSON, Morton, Ill.; Hahnemann Medical College and Hospital, Chicago, 1900; aged 62; died Dec. 27, 1928, at Mackinaw, of cerebral hemorrhage.

OTTO J. DEWITZ, Chicago; Medical Department of the University of Illinois, Chicago, 1904; on the staff of St. Mary's Hospital; aged 52; died, Dec. 18, 1928, of pneumonia.

GUY C. DUFF, Chicago; Medical Department of the University of Illinois, Chicago, 1897; member of the Illinois State Medical Society; formerly on the staff of St. Joseph's Hospital; aged 73; died, Dec. 30, 1928, of syringomyelia and influenza.

JOHN H. GORDON, Pocahontas, Ill.; Missouri Medical College, St. Louis, 1875; ex-president of Bond County Medical Society; a medical pioneer in Bond County; aged 86; died, January 13, of angina pectoris.

CLYDE ENNIS HARRISON, Chicago; Chicago College of Medicine and Surgery, 1917; aged 36; died, Nov.

26, 1928, of basal meningitis, following an operation for mastoiditis.

HARRY P. Klier, Elgin, Ill.; Rush Medical College, Chicago, 1925; on the staffs of St. Joseph and the Sherman hospitals; aged 35; died, Dec. 28, 1928, of epidemic cerebrospinal meningitis, contracted from a patient.

EDWIN WILLIAM HUNTER, Chicago; Rush Medical College, Chicago, 1877; aged 73; died, January 4, of endocarditis and myocarditis.

JOHN MARTIN KAISER, Aurora, Ill.; Northwestern Medical College, St. Joseph, Mo., 1886; member of the Illinois State Medical Society; formerly mayor of Somonauk and member of the board of education; aged 65; died, Dec. 23, 1928, of acute nephritis.

CHARLES KRUSEMARCK, Chicago; Rush Medical College; Chicago, 1879; aged 74; died, Dec. 28, 1928, at La Porte, Ind., of chronic myocarditis.

CHARLES WASLEY MOYER, Rockford, Ill.; College of Physicians and Surgeons, Baltimore, 1895; aged 61; died, Dec. 29, 1928, at the Michael Reese Hospital, Chicago, of carcinoma of the transverse colon and pulmonary embolism.

JAMES FRANKLIN MYERS, Gibson City, Ill.; Rush Medical College, Chicago, 1883; aged 71; died, Dec. 28, 1928, of pneumonia.

ALVIN SMITH, Joppa, Ill.; St. Louis College of Physicians and Surgeons, 1898; president of the Massac County Medical Society; aged 55; died, Dec. 6, 1928, of myocarditis and nephritis.

FREDERICK C. SPRINGE, Chicago (licensed Illinois, 1899); member of the Illinois State Medical Society; aged 71; died, Dec. 17, 1928, of carcinoma of the stomach.

WILLIAM HULL TEN BROECK, Paris, Ill.; Rush Medical College, Chicago, 1877; aged 77; died, Dec. 13, 1928.

GEORGE W. THILO, JR., Chicago; Rush Medical College, Chicago, 1899; member of the Illinois State Medical Society; aged 49; died, Dec. 20, 1928, at the Norwegian American Hospital, as the result of injuries received when beaten and robbed by four thugs.

ROBERT J. WALKER, Chicago; Rush Medical College, Chicago, 1894; aged 57; died January 9, of heart disease.

ROBERT WICKHAM, Chicago; Rush Medical College, Chicago, 1887; aged 74; died, Oct. 23, 1928, of carcinoma of the intestine and myocarditis.

ERNEST PATRICK WOODWARD, Chicago; University of Illinois College of Medicine, Chicago, 1914; aged 39; died, January 8, of septicemia, following a slight injury to the right hand.

FRANK ELDRIDGE WYNEKOOP, Chicago; College of Physicians and Surgeons, Chicago, 1895; formerly professor of biology, histology and embryology at his alma mater; one of the founders and at one time on the staff of the Lakeview Hospital; on the staff of the West Suburban Hospital, Oak Park; aged 62; died suddenly, January 2, of angina pectoris.

ATROPHY

"Maltose is indicated in very difficult feeding cases and in severe cases of malnutrition and atrophy. It is part of the routine in the treatment of chronic indigestion from fat. Carbohydrate indigestion is more frequently seen in cases fed on lactose or on cane sugar: in such cases maltose is indicated."

MEAD'S DEXTRI-MALTOSE

MEAD'S DEXTRI-MALTOSE is usually indicated for feeding difficult cases.

While all carbohydrates can cause nutritional disturbances, it has been shown that Mead's Dextri-Maltose is the form least likely to cause such disorders as fermentative diarrhoea, indigestion in infants, having a low tolerance for sugar.

It is because this carbohydrate is better tolerated by the majority of infants with an inclination to diarrhoea that it is used so extensively in cases where such a condition has been present.

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OAK PARK, ILL., MARCH, 1929

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Editorial

MEDICAL SOCIETY COOPERATION HELPS DEFEAT THE OBNOXIOUS NEWTON BILL

Dr. William C. Woodward, representing the American Medical Association (the national organization) and Dr. William D. Chapman appearing for the Illinois State Medical Society (the state organization) played a most prominent part during the hearing at Washington in opposition to the Newton Bill.

Other physicians who appeared as antagonists to the bill included Dr. George W. Kosmak, New York City, and Dr. Augustus Thorndyke, Boston.

Mrs. H. M. Amsden, Concord, N. H., voiced protest for the Woman's Auxiliary of the New Hampshire State Medical Association.

The part played by doctors and their official organizations in the defeat of the Newton Bill demand the gratitude of every citizen in the United States. Dr. Woodward was highly complimented by a member of the committee of Interstate and Foreign Commerce before which the hearing was held. We publish the compliment as follows:

House of Representatives, Washington, D. C.
My Dear Doctor Whalen:

Quite full hearings have been held on the Newton Bill, and I think that both sides were fairly well represented.

Dr. William C. Woodward, of Chicago, made a specially able presentation of the case against the bill, both from a medical and legal point of view. All the members of the committee acknowledged that, irrespective of their own views on the bill.

SCHUYLER MERRITT,
Member of the Committee.

It is well to remember that the defeat of the Newton Bill does not mean that the Sheppard-Towner Bill is no longer with us. As a matter

of fact, the proponents are even now asking for a five-year extension of it.

Our one regret is that all forty-eight state medical societies were not officially represented in opposition at the hearing of the Newton Bill.

THE 1929 ANNUAL MEETING

Plans are under way to surpass all previous annual meetings of the Society at the 1929 Annual Meeting that will be held in Peoria May 21 to 23. Programs are being arranged so as to benefit the majority of the members of the Society regardless of the committee's own professional inclinations. The meetings will be in the large auditorium which will also house the exhibits. Commercial exhibits will excel any the Society has ever offered at a down-state meeting. There will be a splendid array of scientific exhibits, which are now being assembled. The Peoria Society is well organized, and will make the visit of the members and guests at the meeting one to be long remembered. The Peoria Association of Commerce, the Press of the city and the Hotels are aiding in every way possible to make this a really successful convention. A preliminary program will be published in the April issue of *THE JOURNAL*, and the official program in the May issue. Railroads have agreed to allow the usual Convention rate, on the certificate plan. This will be announced in detail in the April *JOURNAL*. Now is the time for the members of the Illinois State Medical Society to begin planning to attend. The first session of the House of Delegates will begin in the afternoon of the first day of the meeting, and will not be prolonged to the late night hour as has been the custom in the past. The Secretaries' Conference, always one of the big features, will begin at 10:00 A. M. Tuesday, May 21. All Secretaries of Component Societies, including the branch societies of the Chicago Medical Society are specially urged to be present. Dr. R. L. Green, the Peoria chairman of the committee on arrangements, is anxious to make details satisfactory to all who come to the meeting. Dr. W. A. Malcolm of Peoria, has charge of the hotel reservations, and he will see that everyone asking for a reservation gets it. Reservations should be made at an early date, and assurance is given that the hotel facilities are entirely adequate for a large attendance.

This annual meeting is the MEMBERS' own meeting. Instead of the usual fourteen per cent. of the membership being present, as has been the case in the past, the attendance should be at least twenty-five per cent. of the entire membership. All section officers are working hard to make the program of each section interesting. There will be joint meetings of the sections on Medicine and Surgery, which will prove to be a popular procedure.

Peoria is centrally located, and readily accessible to all physicians in the state of Illinois. Hard roads leading from all parts of the state, and many railroads from every direction will make the going easy for all.

At each meeting of the various component county societies, a special effort should be made to get the members out to this Peoria convention. Delegates to be seated in the House of Delegates should be selected carefully. The various societies should insist that their delegates attend the meeting. The House of Delegates is the real legislative body of the entire Society, and the selection of delegates should not be considered lightly.

Boost the annual meeting, and show Peoria that the city's efforts are not in vain. Make Peoria prove that its facilities are ample for a booster attendance for the 1929 Annual meeting from May 21 to May 23, 1929.

ILLINOIS STATE MEDICAL SOCIETY SEVENTY-NINTH ANNUAL MEETING, MAY 21-23, 1929, Peoria, Illinois

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A widely known traveler and author after spending some years in Peoria acquiring inspiration for his works, left a heritage to the city when, describing the rugged scenery, he said: "Nowhere in the wide world is there to be found such mundane beauty as from the bluffs of Peoria, overlooking the Illinois river."

Rich in romantic lore, this garden spot was as early as two hundred and fifty years ago the site of a French mission and trading post, where contact was had with the powerful tribes of Illinois Indians, and the site of the city of Peoria was chosen and named after one of these tribes.

The general topography is a flat plateau extending from two hundred to five thousand feet back from the river's shore, when it rises into majestic bluffs from two hundred to four hundred feet high. The hills and dales are wonderfully rich in brooks and woodlands, and occasionally gorgeous canyon and waterfall formations are encountered. Peoria lake, too, affords ample opportunity for every water sport.

With its temperate climate and healthful environs, its wealth of historic lore and great industrial projects, Peoria is keenly sought out by tourists. Vacationists are drawn from far-away points and the sporting season leaves the nimrod fully repaid. Week-end and over-Sunday parties find it a most inviting objective.

With its loyal, friendly spirit, recognized nation-wide, and its superior transportation, housing and assemblage accommodations, Peoria is

one of the greatest convention cities in the middle west.

Peoria welcomes you and bids you partake of her inspiration and her hospitality.

Peoria is situated near the center of Illinois, on a direct paved highway from St. Louis to Chicago, along the scenic route of the Illinois River Valley. It is easily accessible from every part of the country. In addition to eight paved highways, leading into the city, Peoria is served by fifteen railways, steam and electric, and sev-



Jefferson Hotel

eral motor bus lines. Peoria is an air port on the Chicago-to-Gulf air mail line.

Whether you come to Peoria for a visit or intend to make your home here, you will be impressed with the metropolitan appearance of the city, the hospitality of the people and the ideal living conditions.

Tourists are attracted by scores of interesting points in and around the city. Peoria has five beautiful parks, covering a total of 1,225 acres, many beautiful drives, a score of public playgrounds and four golf courses. Grand View Drive, overlooking Peoria Lake and the beautiful Illinois River Valley is praised by tourists throughout the country.

Peoria's eight miles of river frontage, together with Peoria Lake, affords every form of boating and water sports. In addition to these, there are six enclosed swimming pools and two large modern public pools.

Peoria is the shopping center of down state

Illinois. Seven large department stores and many specialty shops, afford every shopping advantage found in larger cities.

The city has exceptional educational advantages, including Bradley College and the Peoria Art Institute. It is noted for its beautiful churches.

Twelve theaters offering a variety of the best

section and its live stock market is the second largest in the United States from the standpoint of motor truck receipts.

Peoria entertained 116 state, national and international conventions during the past year. Among some of the national conventions recently attracted to Peoria, "The Cogenial Convention City," were the National American Business



Pere Marquette Hotel

productions the year round, several fine clubs and four country clubs afford many forms of recreation.

Greater Peoria has a population of 117,095. One hundred twenty-five major manufacturing plants and 225 smaller ones have invested \$129,000,000.00 in Peoria. These industries have an annual output of \$212,000,000.00 and a pay roll of \$40,000,000.00.

Among the nationally advertised products manufactured are tractors, washing machines, agricultural implements, furnaces, oil burners, stock feeds, food products, candies, cereals, cigars, steel and wire, cordage, etc.

Peoria leads the world in the production of commercial solvents and ranks first in the manufacture of high priced washing machines, and track laying type of tractors.

Peoria is in the center of a rich agricultural

Club, National Altrusa Club, American Bowling Congress, the Saengerbund of the Northwest, American Poultry Association, the National D. O. K. K., National Swine Show and many others.

Peoria is just "one sleep" from three-fourths of the total population of the United States. It has splendid hotel accommodations with reasonable rates, with a convention capacity of 7,500.

ADDITIONAL NARCOTIC LAWS NOT NEEDED IN ILLINOIS

On February 7, 1929, Senator Barbour introduced a narcotic bill in the state senate. It was listed as Senate Bill No. 102 and sent to the judiciary committee, of which Senator Barbour is chairman.

The title of the bill is as follows: "For an

act regulating and controlling the use of narcotics and providing for the isolation and rehabilitation of drug addicts and to repeal certain sections of an act therein named."

In the first place there is at present a narcotic bill in this State copied word for word from the U. S. Narcotic Law. This fact seemed to be unknown to the sponsors of the Barbour bill.

Second, the bill is unconstitutional in that the title and contents are not in harmony in order to get the purport enacted the information would have to be presented in two separate bills.

Section 5 is in direct conflict with the United States Narcotic law.

Sections 7 and 8 provide for a state narcotic hospital and the commitment therein of habitual drug users for a period of not less than eight months or more than two years. Upon information supplied by a policeman or any citizen an alleged addict could be brought into court and if the court finds, upon the evidence of two or more reputable physicians that he needs treatment he would be confined for the eight months to two years "cure" after that he could be discharged or paroled "under such terms and conditions as the department (public welfare may establish)."

It would be legal, under this provision, for the department to compel paroled persons to report to somebody periodically for the remainder of their lives. It also makes mandatory the eight months confinement regardless whether the addict is cured in a shorter time. Being a user of narcotics is not a crime or an offense in the eyes of the law. All addicts are not criminals, neither are all criminals addicts. Many of the most educated and highly respected citizens of the country are the victims of addictions the operation of such a law would be mischievous and degrading.

The Barbour Narcotic Bill is both from a legal and medical standpoint so full of blow holes that further comment is unnecessary, in its present form it is impossible of enactment into law.

At the subcommittee hearing on the Barbour Bill in Chicago January 26th it was admitted by Mr. Allen representing the United States Narcotic division, Chicago District, that doctors and druggists play no part in the cause of drug addiction, that so far as these two professions

are concerned they are practically one hundred per cent clear of suspicion as being causative factor in drug addiction.

MEDICAL PROFESSION IS NOT RESPONSIBLE FOR DRUG ADDICTION

So much loose talk by public officials and private citizens is engaged in from time to time directed against the medical profession as being responsible for drug addiction that we take the liberty of again calling attention of both the profession and the lay public to these untrue and unjust attacks.

The Barbour Bill, Senate Bill No. 102, is primarily directed at the medical and pharmaceutical professions. At the hearing on this bill in subcommittee February 23, 1929, in Chicago, the United States government representative, Mr. Allen, stated that both these professions are blameless as a causative factor in drug addiction.

As a sample of loose talk engaged in by public speakers we call attention relative to the number of addicts in this country and the part played by physicians as a causative factor. According to the Taylorville Daily Courier of March 1, 1927, of a speech made by a Federal Judge when speaking before the Taylorville Rotary Club of Taylorville, Illinois, on February 28, said that "2,500,000 addicts in the United States were made by the practice of medicine."

This and similar statements are unjust and untrue. The medical profession are not responsible for addiction and the number of addiction in the country, according to authentic figures nowhere near approach the number mentioned. The figures quoted are away ahead of any number of estimates made by official organizations.

L. G. Nutt, chief of the narcotic division of the United States on Dec. 11, 1926, estimated that there were 100,000 addicts in the country. As this is Chief Nutt's especial field of investigation it would seem that he would be better able to give the number of addicts in the United States than any other man. Mr. Nutt in giving this estimate before the House Committee on Appropriations added that his "estimate was based on a survey by 300 field agents engaged in this work, who mingled with the underworld and consulted physicians and city authorities and others."

Mr. Nutt added that 98 people are employed

in the anti-narcotic work at the headquarters at Washington, and the total number of employees there and in the field is 333: that last year they had brought about 5,120 convictions, with total collections from the violators of the law, including fines of \$981,739.

May 23, 1924, *Public Health Reports*, in a brochure,

"The Prevalence and Trend of Drug Addiction in the United States and Factors Influencing It," quotes from surveys of the States of Tennessee and Pennsylvania and from the United States Army and the Treasury report. The maximum probability of drug addicts in any of these findings was placed at 269,000 or about ten per cent of the statement of Judge Fitzhenry.

Mr. Nutt's estimate, of course, is less than one-twenty-fifth of what the Bloomington judge lays upon the country's population.

In the Tennessee survey made by Lucius P. Brosn, State Food and Drug Commissioner, as he was able to register 2,370 addicts he estimated the maximum number as not exceeding 5,000 in the state. Using these figures as a basis he estimated 215,000 in the entire country.

The treasury department survey under the secretary of the treasury, conceded the most comprehensive survey made up to that time; claims there were not over 237,655 addicts in the United States.

The Pennsylvania survey was made under the State Bureau of Drug Control. As in five years this bureau collected the names and addresses of drug addicts in Pennsylvania and obtained less than 9,000 names, the chief of the bureau estimated that there were not more than 20,000 addicts in the state; that on this basis there would be approximately 242,000 addicts in the United States.

The United States Army findings were based on a survey of all men in the draft age and found there were only 3,284 drug addicts. If the army rate is applied to the entire United States based on the 1920 census there would be approximately 99,500 addicts.

Clinical reports were made by revenue agents of the 44 clinics supervised by the internal revenue department 34 of which contain statistical information on addiction in large cities in California, Connecticut, Georgia, Kentucky, Louisiana, New York, North Carolina, Ohio,

Rhode Island, Tennessee, Texas, and West Virginia.

These clinical statistics show that there were 4,123 addicts in 34 cities having a total population of 4,182,952 or 0.98 addict per 1000 persons. At this rate there would have been in America 104,300 addicts in 1924.

New York City clinic not included in the cities in states above mentioned registered 7,464 addicts. Using the 1920 census as a basis of computation the New York City rate would give approximately 140,000 addicts for the entire country.

Applying the New York rate to the entire country would be absurd. New York is the largest port of entry in the United States and is the clearing house for the whole world and naturally the percentage of addiction in New York far exceeds that of any other city and applying the same yard stick to New York as to other sections of the country is ridiculous.

Using the U. S. *Public Health Reports* of "May, 1924," yields the maximum estimate 269,000 and a minimum estimate of 99,500 addicts in the U. S. with various estimates between these two figures.

Mr. Nutt added, "Of the hundred thousand non-medical addicts in this country, and by non-medical addicts, I mean addicts that take it simply to gratify the habit, nearly all acquire their supply through bootleg channels because the doctors will not prescribe it except occasionally."

Although the usual disposition of the addict is to shift the responsibility for his affliction to others, and to justify himself for his habit, less than one per cent, claim the addiction is due primarily to physicians eventuating from a necessary treatment for disease.

Let it be repeated, that according to statistics and surveys the United States government officials and health departments unite in the finding that physicians play an inconspicuous part if any in the causation of drug addiction.

SOCIAL WORK IS BECOMING MORE AND MORE A METHOD OF TREATMENT

Wilfred S. Reynolds, executive director to the delegates of the Chicago Council of Social Agencies in his annual report at the meeting January 25, 1929, said: "Social work a new charity;

Out of a fuller understanding of the aims and contempt of the term 'charity' social work has unfolded. Adopting much of terminology and method from the medical and legal professions, *social work is becoming more and more a method of treatment*. Its patients or clients are those suffering from or threatened with ills, which if allowed their freedom, will result in the failure of individuals as social beings. Its methods bring into use a treatment procedure. Conditions are analyzed; causes are evaluated; processes are set up to relieve immediate conditions, to affect favorably the causes, and to sustain, protect, guide and restore so far as possible, human beings and family groups to lives of usefulness.

"Our council now includes in its membership one hundred and seventy-eight social work organizations serving the Chicago community."

COURSE IN LARYNGOSCOPY

Dr. Franz Hasslinger, Docent of the Hajek Clinic, Vienna, will be in Chicago, Monday, April 1, 1929, as the guest of the Chicago Laryngological and Otological Society at its regular monthly meeting. Immediately following this meeting, he will begin his Course in Laryngoscopy and Tracheo-Bronchoscopy here in Chicago under the auspices of the Chicago Laryngological and Otological Society.

TENTATIVE PLAN

HASSLINGER COURSE LARYNGOSCOPY AND TRACHEO-BRONCHOSCOPY

Pittsfield Building, Chicago, Illinois
(Courtesy Estate of Marshall Field)
April 1 to 7, inclusive

INSTRUCTION

Tues., Wed., Thurs., Fri., Sat.
4:30 P. M.-6:30 P. M.
7:30 P. M.-9:30 P. M.
Sunday
2:00 P. M.-6:00 P. M.

DINNER

Tavern Restaurant, Pittsfield Building
6:30 P. M.-7:30 P. M.
(Tues. to Satur.)

HOSPITAL CLINICS AND DEMONSTRATION

9:00 A. M.-12:00 Noon
2:00 P. M.-4:00 P. M.

EACH COURSE LIMITED TO TWENTY
INDIVIDUAL APPROXIMATE FEE \$50.00
(fifty dollars)

LECTURE—Monday, April 1, 1929

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY

Medical and Dental Arts Building
Fellowship Gathering and Dinner 6:00 P. M.

BACK TO THE SHEPPARD-TOWNER BILL: THE NEWTON BILL HAS BEEN ABANDONED

Realizing the inevitable defeat of the Newton Bill, its sponsors abandoned the bill and substituted a new bill providing for a five-year extension of the Sheppard-Towner Act. It is known as H. R. 17183 and is as follows:

70TH CONGRESS, 2D SESSION—H. R. 17183
IN THE HOUSE OF REPRESENTATIVES

February 19, 1929

Mr. Newton introduced the following bill; which was referred to the Committee on Interstate and Foreign Commerce and ordered to be printed:

A BILL

To continue in effect for five years the Act entitled "An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 2 of the Act entitled "An Act for the promotion of the welfare and hygiene of maternity and infancy, and for other purposes," approved November 23, 1921 (United States Code, title 42, section 163), as amended by the Act approved January 22, 1927 (Forty-fourth Statutes at Large, page 1024; United States Code, Supplement I, title 42, section 163), is amended by striking out the words "for the period of seven years" wherever they appear in such section, as so amended, and inserting in lieu thereof the words "for the period of twelve years."

Sec. 2. Section 2 of such Act approved January 22, 1927, is amended to read as follows:

"Sec. 2. Such Act approved November 23, 1921, shall, after June 30, 1934, be of no force and effect."

OBJECTIONS TO THE EXTENSION OF THE SHEPPARD-TOWNER ACT

Note: All the objections that we have enumerated from time to time against the Newton Bill apply with equal force to the extension of the Sheppard-Towner Bill. The following objections to the Sheppard-Towner Bill should be noted:

1. The Sheppard-Towner Act fails to give food, shelter, clothing, medicine or medical care for any mother or any child.

2. The Act does put upon the taxpayers and bounty list, herds of investigators, inspectors, record keepers, red-tape winders, and political heelers of every creed, sex and color.

3. How thinking men view the Maternity Act, State subsidies and similar menacing legislation.

4. Under the provision of the Sheppard-Towner Act the Federal Government will control the expenditures of State appropriations.

5. Maternity education should be directed and supervised only by physicians.

6. The principle of Federal State aid as a means of financing public health work is an unsound financial policy.

7. An insidious attack upon the government of the republic and a potent malefactor against the bodily health of the citizens.

8. Socialistic rather than democratic; a political switchback rather than a child preservative.

9. A fecund breeder of more and higher taxes. The government "gifts" such as "Federal aid" are procurable for the people only by taxes from the people, and

10. The principle of Federal State aid as a means of financing public health work is an unsound financial policy.

11. Morally and legally, the proposition is indefensible. The Federal Government has no more right to collect money from New York, Illinois and Massachusetts and divide it among Montana, Wyoming and New Mexico than it has the right to take money from Jones and give it to Smith. The Federal Government collects more money from a millionaire than from a laborer for the Federal Government, but it has no more legal or moral right to make Illinois "divide up" with Texas or Alabama than it has the right to make Rockefeller "divide up" with Eugene V. Debs.

12. No such emergency exists as has been claimed for justification of the maternity act and there are no reliable statistics by which it can be proved that the United States stands seventeenth in the maternal death rate.

13. The means provided in the act will not afford an effective remedy for alleged existing conditions.

14. The distribution of Federal funds to state health organizations will inevitably lead to the domination and dictation of state activities by the Children's Bureau.

15. The ability of the Children's Bureau to dictate and largely control the appointment of the head of the Children's Bureau in each state as well as all of the public health nurses, district superintendents and others, will result in the organization of a large body of salaried employes appointed and largely paid by a Federal bureau, yet working under a state department of which they are to a large extent, independent. Such a condition will produce friction and confusion in public health work, and will make possible the development of a political machine under the control of the Children's Bureau.

16. The problem of reducing maternal and infant death rates is largely a medical problem. Whenever it pleases the Sheppard-Towner Maternity Act authorities can work entirely under lay direction and independent of medical control.

17. With the exception of those activities which are clearly national in character, such as quarantine and the regulation of inter-state commerce and the like, public health work is a function of the state and local governments and should be paid for out of state and local funds and directed by state and local officials. The furnishing of instruction or care to mothers or any other persons needing such instruction is just as much a function of local government as it is the providing of food and clothes for the destitute. The assumption and exercise of these functions by the Federal Government is an invasion of the legitimate activities of the State.

18. Further, it is: A destroyer of individual rights and a developer of community supervision.

19. A conferrer of a million salaried jobs for political incumbents but not a dispenser of either clothing, shelter, food, medicine or medical care for any mother or any child.

20. A measure that will pay a retinue of politicians to disarrange the domesticity of a citizenry while the political wage is levied high-handedly out of the pockets of those whom the measure assumes to serve.

21. A masterpiece of false witness between politicians and the people both present and in the generations yet to come.

22. An invader of private morality and an

abaser of humanity to the level of animal and poultry bureaus.

23. A socialistic crime committed in the name of education.

24. A lever increasing the powers lodged now in the Department of Labor as by this bill the Children's Bureau of that portfolio becomes the official arbiter of the vital domesticity of the United States. Per sequence, the temple of every woman's body, becomes a political taxable and an asset toward healers. Upon a woman's fecundity or lack of it will hinge the bread and butter jobs of a bureaucratic regiment.

25. An inductor of the practice of obstetrics to the rule of thumb of political chicanery and machine manipulation.

26. A fundamental process towards the eventual establishment of a permanent lay dictation of the practice of medical and surgical science.

27. A tax bearing boomerang, rending the citizenry by community, state, county and Federal levies for which will be received the octopus burden of a pack of strawbosses that will help no one and hurt many.

The Sheppard-Towner Maternity Act has achieved a certain amount of favor, or at the least of toleration, principally from two classes of people. In the first class may be placed those who are to benefit politically, either directly or indirectly by this Machiavellian piece of legislation. In the second class are those who know nothing about the actual content of the Sheppard-Towner Maternity Act but are finely misled by the name, and by certain rather emotion-reflexes aroused unconsciously in the average mind by the word "maternity."

The political beneficiaries of the bill know that its intent, content and portent are pork barrel from bung to ballast. The protesting but tax-paying citizens have a bland idea that in some blanket fashion this Sheppard-Towner Maternity Act intends to dole out adequate care and shelter to mothers and children in poverty stricken homes, where maternity is almost perpetually the order of the day and where the necessities of decent living are not.

Now that this is exactly *not* what the Sheppard-Towner Maternity Act has any intention of doing is exactly *what* the average citizen of the United States does not know and has pretty carefully been kept from knowing. That the Sheppard-Towner Maternity Act *does* intend to

put upon the tax-payer's bounty list herds upon top of herds of investigators, inspectors, record keepers, red tape winders and political heelers of any creed, sex, race or color who will be legally entitled to know as many intimate details about a man's wife as he does himself, and to inscribe this knowledge on the public documents of the country, is *exactly* what the average citizen does not know. That under the mask of "Education as to what maternal care should be" this bill intends to limit its benevolence to paying the salaries of the scouts, sleuths and maternal secret service is another item in what the citizen is not being taught about the Sheppard-Towner Maternity bill.

TALK AND TAXES—THAT'S THE SHEPPARD-TOWNER ACT

THE SHEPPARD - TOWNER - NEWTON BILL AND ENCROACHMENT UPON STATE RIGHTS IN HEALTH MATTERS STATE AID THE FEDERAL CONTROL OF EDUCATION

WASHINGTON BUREAUCRATS CLOTHED WITH LEGISLATIVE, EXECUTIVE AND JUDICIAL POWERS

State Aid propagandists have not been content with the octopus-like growth of their pet. Encroachments upon state rights in health matters and numerous other activities are insufficient for their unsatisfied appetite. They are now out after federal control of education; the primary object of the Sheppard-Towner Maternity Bill was for federal control of medicine and the care of the sick.

The leading Constitutional lawyers of the country are all alert to the dangers of over-centralization of power at Washington. The ILLINOIS MEDICAL JOURNAL was the first to call the attention of the physicians and public to this rapidly growing menace. The system is now being condemned by most of the leading educators and practically all the country's statesmen. In no phase of human endeavor is the menace more dangerous than when applied to the care and supervision of the health and welfare of the people.

With the Hon. Edward P. Buford, President of the Virginia Bar Association, we believe:

That the concentration of power in Wash-

ington through the multiplication of the administrative bureaus under a perverted interpretation of the general welfare clause, is the most far-reaching and dangerous of modern legislative tendencies.

The Sheppard-Towner Maternity Act, and the Curtis-Reed Bill (Educational Bill S. 291—H. R. 5000) now pending in Congress are conspicuous illustrations of this method of federal usurpation.

If measures of this character are legitimate exercises of federal power, there is no limit to the possibility of federal exploitation. Every conceivable form of governmental activity may be subsidized by federal taxation, medicine included, and the number of federal office holders be indefinitely increased. To illustrate the latter point, we call your attention to the fact that there are 2,700,000 employees on the payroll of the Federal and Local Governments of the United States, and 700,000 former employees drawing pensions. In 1860 one person in every thousand population was on the public payroll; in 1895 the ratio had increased to one in one hundred, and today, every group of 11 citizens are supporting one person on the public payroll.

Under the practice now prevailing, new bureaus are created and the power of legislation is delegated to them. They are given authority to write the laws they are to administer and to change them at pleasure. In other words, they are clothed with full legislative and executive powers and to some extent with judicial powers. In other words, these bureau heads are judge, jury and prosecuting attorney and hangman, all the powers being delegated to the one person.

THE SECRETARY OF THE U. S. TREASURY SHOWS FUNDAMENTAL OBJECTIONS TO THE SHEPPARD-TOWNER-NEWTON BILL

The statements of Secretary of the Treasury Mellon published in the *Woman Patriot* of February 1, 1929, are highly instructive and educational. We quote:

Secretary of the Treasury Mellon has stated a fundamental objection to all blanket bills appropriating vast lump sums to any bureau or department to expend at discretion, in his letter of January 12, 1929, to Senator Warren, Chairman of the Senate Finance Committee, and in his

letter to Bishop James Cannon, Jr., of the Methodist Episcopal Church, South, respecting the proposal to appropriate \$25,000,000 for the Secretary of the Treasury (or the President, as later proposed in the Senate) "*to spend as he sees fit*" on prohibition enforcement. Secretary Mellon's remarks apply even more strikingly to the Newton Bill proposal to turn over \$1,000,000 a year to the Chief of the Children's Bureau *to distribute as she sees fit* on "child welfare extension," which is *not, like prohibition, within the scope of the Constitution* or the powers therein conferred on Congress.

Secretary Mellon says in part:

"I note in your telegram you suggest that the restrictions be removed and that \$25,000,000 be made available to the Secretary of the Treasury *to spend as he sees fit*. . . . I want to suggest whether you consider it good practice to place so vast a sum in the hands of a public official *with unlimited discretion as to its use*? It makes no difference whether that official be the Secretary of the Treasury or some other chief of an Executive Department of Government, I do not believe that adequate protection of the public interests and the proper safeguards that should always surround the expenditures of public funds can fairly be said to have been provided for if an appropriation of *this character* is made. Such a program would *break down the safeguards* of the Budget System, and the effective and proper control which Congress exercises over the expenditure of public funds. I think that upon second consideration you will realize that this is not a minor question, but a fundamental one, and that in the long run, whether in the prohibition *field* or in *any other field of government*, infinitely more is lost than gained if for the sake of accomplishing immediately a purpose, no matter how desirable, a fundamental principle of good government and sound practice is violated."

(Letter to Bishop Cannon.)

" . . . I assume, of course, that if any such large sum is to be appropriated, the Congress will desire it to be used with the utmost effectiveness and in a way calculated to bring about the greatest results . . . I do not believe that any such large sum as is provided for . . . should be appropriated . . . until it can be determined how any increased amounts can be most wisely and effectively expended. In other words,

I am not prepared to say that prohibition enforcement can not be made more effective by the expenditure of increased amounts for this purpose, but I do feel that *no such appropriation should be made* until they can be definitely allocated to certain specific purposes, and that any other method of procedure will necessarily result in the extravagant use of the public funds." (Letter to Senator Warren.)

If, "*a fundamental principle of good government and sound practice*" would be violated, as Secretary Mellon declares, in turning over a vast sum, even to him, a Cabinet officer, "to spend as he sees fit" *even for the purpose of enforcing a constitutional amendment*, how much more would it be violated by turning over a \$1,000,000 a year *campaign slush fund* to the Chief of the Federal Children's Bureau to spend or distribute "*with unlimited discretion as to its use*" for "child welfare extension," "independently or in cooperation" with "child welfare or other local associations or individuals" without having the faintest excuse, under the Constitution of the United States, for "child welfare" appropriations by the Government itself, much less for "matching" and distributing such funds among private "social" agencies, such as Hull House, Henry Street Settlement, etc.!

The Newton bill, as an outrage against the Constitution, not only, but against *any* fundamental principle of safeguarding public funds against waste, extravagance, corruption and graft, is revealed so clearly by Secretary Mellon's statement, that it is difficult to see how any honest Member of Congress who remembers his oath to support the Constitution and his duty to safeguard appropriations from the people's Treasury, can possibly vote for it.

HERE IS THE EVIDENCE. THE SHEPPARD-TOWNER ACT IS THE FORMIDABLE BEGINNING OF A COMPREHENSIVE SYSTEM OF GOVERNMENTAL MEDICINE

The *Chicago Journal of Commerce*, a recognized financial and commercial periodical, recently made the following comment on the preparatory activities of the Children's Bureau of the Department of Labor as to the proposed extension of the Sheppard-Towner Act:

When a periodical of high class in the lay press takes so decided an attitude upon so critical a question does it not behoove the more indolent of the medical profession to convince themselves that the columns of the ILLINOIS MEDICAL JOURNAL do not exaggerate the current crisis in medical economics?

"The children's bureau of the department of labor is now preparing its campaign for a renewed extension of the Sheppard-Towner government medicine act, the authorized appropriations for which will expire June 30, 1929. At the next session of congress a drive will be made for renewed appropriations.

"It is the purpose of the paternalists and bureaucrats to make the Sheppard-Towner government medicine act a permanent piece of legislation, and to keep the federal government forever in the business of paying money to the states for local medical and nursing work.

"The Sheppard-Towner act is called a "maternity and infancy act." It has been represented as an invaluable aid to mothers in childbirth, and to infants under 1 year of age.

"But in fact the operations of this law are not limited in this fashion. Instead they cover a large part of the general field of medicine and medical research. The Sheppard-Towner act is the formidable beginning of a comprehensive system of government medicine.

"For the fiscal year 1927 the federal government paid to the state of Kentucky the salaries of a state health officer, a health director, an assistant director, a clinical instructor, a chemist for water and milk supply, an inspector of birth registration, an educational instructor, a stenographer, a bookkeeper and six clerks.

"In Georgia the federal government paid for the distribution of free diphtheria toxin-antitoxin to clinics for the immunization of children under 7 years of age. This was a highly valuable work. But it certainly violated the promise that the Sheppard-Towner act would be used only for the benefit of mothers in childbirth and of children under the age of one year.

"In Colorado the federal government paid for what has been described as 'special work' with the boys' and girls' clubs at the state fair.

"In California the federal government paid for the distribution of pamphlets dealing with tonsils and adenoids.

"In Iowa the federal government paid for

dentists and nurses in dental conferences and clinics for children up to 7 years of age.

"In Maryland the federal government paid for a survey of crippled children.

"In New York the federal government paid for an orthopedic clinic, consisting of a traveling unit comprising two orthopedic surgeons, eleven field nurses, and one muscle-tester.

"These are only a few of numerous items showing the extent to which the federal government's money, under the Sheppard-Towner act, is being employed not only to lessen the deaths 'connected with childbirth, and among infants under 1 year of age,' which is the professed purpose of the act, but for health work among children in general, including educational work in boys' and girls' clubs.

"What is being done in the case of children can readily be done in the case of adults. A bureaucracy tends to exalt itself by extending its power. The Sheppard-Towner act is the well-defined beginning of a general system of federal government medicine. It is paternalistic, it is bureaucratic, and in sober truth it is socialistic.

"If socialism can be applied to the medical profession, it can be applied to other professions and to business in general.

"When the proposal for another extension of Sheppard-Towner appropriations is made at the next session of Congress, it ought to be defeated. It probably will not be. Masked socialism is not encountering many defeats in the United States. It is winning again and again, because business is asleep."

The fact cited above shows conclusively the entrance of the government in the practice of medicine on the most intensive scale possible.

The fundamentals underlying the whole scheme are detrimental to the best interests of the country, it understands the stability of the nation.

If socialism can be applied to the medical profession it can be applied to other professions and to business in general.

Carried to a possible conclusion it means government bread, government pills, government clothes, government shoes, government rent out of the same bag.

ANTI-VIVISECTION LEGISLATION IN ILLINOIS

We have been assured through the public press and by radio talks over station WCFL that Senator Thomas J. Courtney will introduce in the State legislature an anti-vivisection bill at this session. The bill is backed by the Illinois Anti-Vivisection Society. No doubt by the time this number is off the press the bill will be before the legislature.

Elsewhere in this issue we publish data which will be of material assistance to doctors, members of the Woman's Auxiliaries and lay organizations as a basis for talks before clubs, organizations, etc., in opposition to anti-vivisection legislature.

MAN'S DUTY TO HUMANITY IS OF MUCH GREATER IMPORTANCE THAN MAN'S DUTY TOWARD DUMB ANIMALS — ANTI-VIVISECTION AGITATION NEWEST CURSE OF HUMANITY

In Illinois, the District of Columbia and perhaps elsewhere over the country are springing up plans for the introduction by law-making bodies of many bills and other prohibitions forbidding continuance of animal experimentation.

Man's duty toward dumb beasts is one of the inherent truths of civilization, but man's duty to humanity is of such a much greater scope that any criticism of the very small sacrifice of animals necessary to preserve millions of human beings, in fact, the very race itself, is not even a study in comparatives based on the ratio of benefits obtained.

Anti-vivisection defeats the aims it serves. Not only do human beings receive almost incredible assistance from animal experimentation but stockmen and breeders admit that their stock and herds derive incalculable assistance from the results of animal experimentation. It is doubtful if the percentage of animals used for research work in this regard and who thus come to an end different than that which in the due course of nature might be expected to be theirs, in any way approximates the number of physicians and nurses who quietly lay down their lives every year in the discharge of their

duties without a whit of agitation as to these "martyred humans."

That the sentimentalists and the uninformed, and the misinformed are on the way to make a costly mistake by all this anti-vivisection agitation seems to be well indicated. Notwithstanding the rational aspects of the case so much sentimentalism is being broadcasted over the country as to the suffering of animals "martyred and butchered" by science that both the righteousness of cause and effect are lost sight of completely through a mere and trivial detail of the process.

The medical profession is not a company of sadists whether it is worse to let a single animal suffer for a comparatively brief space of time or for thousands, aye, hundreds of thousands of children to die in the lingering agony of diphtheria or dozens of kindred ailments conquered by the medical profession through the results of animal research is a question admitting of but one answer. Hundreds of thousands of mothers and fathers have been spared to love, to rear and to support their families as a result of knowledge obtained through animal experimentation in the realm of abdominal surgery. It is doubtful if ten per cent of this number of animals were sacrificed to secure these results.

Further, treatment of "specimens" is better by far than the average animal, outside of the blooded or household pet, receives at the hands of the community. How many anti-vivisectionists inveighing against the scientific ways of animal experimentation in dogs, for example, can boast the possession of a single such household pet? Dog lovers in this instance are seldom of those who bother to care for a household pet in these days of economic and housing complexities.

Not only has animal experimentation provided vaccines, bacterins and anti-toxic serums: aided in the development of new methods of surgery and reliable means and methods of the diagnosis of infectious diseases and in other problems of civil life, but the result of animal experimentation was an invaluable aid to defense during the war. From such work it was learned how to use gases, how to defend soldiery against such enemies, and in the absence of this knowledge the aftermath of the war would have been not only additional thousands

of men dead but additional thousands of cripples.

Appallingly destructive live-stock plagues have been quenched through methods obtained from animal experimentation. This in turn has acted to prevent hunger and starvation from becoming universal in some parts of the world. Experiments with animals have done as much good to the animals themselves as to the human beings who guard them, as a later epitome will evidence.

Without abundant healthy live-stock the result of animal disease control it has been computed by experts there is a great question as to whether there could be produced food enough for the present population. Similarities between the human and the animal physiology, as stated previously, have resulted in discoveries useful to veterinarians, stockmen, hygienists and physicians. Economists, too, must be brought into the calculation, as live-stock convert into human food tons of otherwise inedible foliage, shrubs and grasses and other vegetation.

Vasomotor mechanism, capillary circulation, circulation of the blood, functions of the nervous and digestive system, significance of the endocrine glands, and in general, pathology, physiology, therapy and biochemistry have benefited from animal experimentation.

Thanks to animal experimentation, the Panama canal, known in its initial stage as "The yellow lane of death" and abandoned by the French after a cost of 20,000 lives, became a successful project with the abolition of yellow fever, the passing of which scourge could never have been accomplished without *animal experimentation*.

During the present congress a bill was introduced to prohibit the use of animals for medical purposes in scientific investigation in the District of Columbia. This is but a flare. Preliminary bonfires in this war have already started in other sections of the country. The idea is to make it almost impossible to obtain dogs upon which to experiment. There will follow acts to exclude from laboratory use the horse, the guinea pig, the rabbit and the rat. For the present the only topic as a premise to fight that is practical politics is the obtaining and use of dogs without violation of the law. On this point science has almost lost the fight. In the state of Connecticut the anti-vivisection-

ists have so managed things that a dog can't be got for less than \$5.00 and such costs are added as makes this minimum cost about \$8.00 per dog. In case medical laboratories try to start a dog farm for laboratory use the next step of the vivisectionists can be imagined. Humane societies sponsoring anti-vivisection activities are conscientious but their consciences are prejudiced and not fair and wise in their choice of perspective as an epitome of the results of vivisection show.

Introduction of this bill in Congress is the first gun in a countrywide campaign. After success in the District of Columbia the fight will be carried into each of the forty-eight states, hence this bill now before Congress is of crucial importance. It should not be met merely by pious information as to the humane practices of science but the American Medical Association and various state associations should have introduced a bill in all legislatures that all dogs collected by humane societies or confirmed stray dogs might be used by science in the interest of the public weal. Such a bill would be analagous to the anatomic acts of many states. Similar measures should be introduced into the legislature of each of the forty-eight states. Dogs are a necessary adjunct to scientific research and scientific research is a necessary adjunct both to the preservation and the progress of civilization. Briefly epitomized here are a few of the advantages resulting to the race from animal experimentation.

Animal experimentation known as vivisection and that branch of science fought so bitterly by anti-vivisectionists has to its credit much alleviation of the woes of humanity. Millions of human lives have been saved through the results of experiments in vivisection. Among the achievements aiding public welfare and saving human life that have resulted from animal experimentation are these discoveries, developments, alleviations, panaceas and cures.

A BRIEF FOR VIVISECTION—WHAT ANIMAL EXPERIMENTATION HAS DONE FOR MANKIND AND ANIMALS

Vivisection or animal experimentation is *absolutely indispensable* to progress in the prevention and cure of human disease, and accident.

Hundreds of thousands of American people living today owe their lives to advancement in

medical science, progress in which has been made possible only through the medium of experimentation on animals.

Even the life of animals themselves has been made more secure through the medium of animal experimentation and vivisection.

Further progress in the reduction in sickness and mortality is possible and to a most important extent depends upon further experimental procedure of this nature.

To retard the progress of medical research by the abolishment or unnecessary restriction of animal experimentation is needlessly to sacrifice the lives of hundreds of thousands of human beings—and also of animals.

Some conception of the very material advances that have been made in the prevention and treatment of diseases or results of accidents, advances that have been made possible chiefly through the medium of animal experimentation or vivisection, may be gained from the following summary:

1. Dog distemper: Discovery of vaccine as prevention and serum for cure of distemper in dogs, announced in England, November 29, 1928, as a result of five years' research conducted by the Mill Hill Laboratories of the Medical Research Council on behalf of the Field Distemper Fund and its subscribers.

2. Typhoid fever: Use of anti-typhoid serum during the world war effected a reduction of the deaths from typhoid fever to 200 out of 2,000 cases among 4,000,000 men mobilized, as against 2,000 deaths in 20,000 cases of typhoid and less than 150,000 men mobilized in the Spanish-American War. In other words, this serum reduced the death rate ratio in the world war from a probable 56,000 deaths and 560,000 cases, had the same ratio prevailed as during the Civil and the Spanish-American wars.

3. Diphtheria: Use of antitoxin has reduced death rate in diphtheria to seven and eight-tenths (7.8) per hundred thousand population, as against a previous mortality of as high as eighty-five (85.) per hundred thousand, or a reduction of about ninety per cent. These figures naturally fail to include any statistics as to the morbidity and permanent disability prevented by this discovery.

4. Smallpox: Vaccination, resulting from animal experimentation, has practically elimi-

nated this scourge from civilized countries, thus short circuiting a disease of successive epidemics each of which killed millions and disfigured millions more. Indeed, true smallpox has become a rare disease today because of vaccination, and in cases where inoculation has been done, there is seldom if ever smallpox disfigurement.

5. Yellow fever: Findings of animal experimentation coupled with those from human sacrifice have practically abolished yellow fever, one of the scourges of the civilized world.

6. Plague: Through anti-plague serum, this disease with its death rate that ran as high as ninety (90) per cent., is no longer an element to be dreaded; in fact, is comparatively unknown. Animal and human experimentation demonstrated the cause and mode of transmission of this disabling and deadly disease, that cost the lives of hundreds of thousands yearly and brought complete or partial disability annually to hundreds of thousands more.

7. Malaria: Through experimental inoculation, ravages of this deadly disease have been reduced to the vanishing point. Its complete abolishment is only a matter of time.

8. Lockjaw: Anti-tetanic serum prevents the previously fatal lock-jaw resulting from operations and after accident, and is a specific for mortality from this infection.

9. Hydrophobia: Rabies vaccine has reduced the death rate from hydrophobia, previously uniformly fatal, to a fraction of one per cent., and the danger of possible infection from hydrophobia is daily minimized by the increasing administration of preventive serum to dogs, thus saving the dogs as well as the people.

10. Epidemic cerebro-spinal meningitis: Serum treatment has reduced death rate from ninety per cent. to less than 20 per cent., and minimized ensuing deformities.

11. Pneumonia, most deadly of diseases: Through animal experimentation a serum has been discovered that has reduced the mortality in type I of this much dreaded disease from 25 per cent. to $7\frac{1}{2}$ per cent., and a vaccine has been perfected that has reduced the mortality in all four types of pneumonia from 40.5 per cent. to 21.2 per cent., or approximately a 50 per cent. mortality reduction in all types of pneumonia has been achieved as a result of animal experimentation. Further experimentation is sure to

bring about complete control, cure and prevention of this much dreaded disease.

12. Tuberculosis: Due to animal experimentation, to a large degree, tuberculosis has been reduced 50 per cent. in twenty-five years. The early diagnosis of tuberculosis is often made and the patient's life saved through the sacrifice of a guinea pig, when the diagnosis could not be made by any other method. What is the life of a thousand guinea pigs to that of a single child?

13. Antiseptic surgery: Discovery of antiseptics and opening up of miracles of modern surgery are due to animal experimentation. Emphasis must be laid upon the development of the abdominal branch of this section of medicine by which is made possible operative treatment of stomach, appendix, liver, gall-stones, intestines, pancreas, bladder, spleen, kidneys, generative organs: modern surgery of the brain and surgery of the chest, including surgery of aorta, lungs, heart, esophagus, etc.: in fact, made possible all the wonderful results of modern surgery, and a saving of thousands of lives annually and incalculable pain, invalidism and poverty.

14. Compound fracture: Reduction of death rate after compound fractures from sixty-six in a hundred to two or three out of a hundred, or a reduction of 97 per cent.

15. Ovariectomy: Reduction of death rate from sixty-six out of one hundred to merely two or three out of one hundred, or another 97 per cent. reduction. What a debt of gratitude the women of the world owe to animal experimentation in having made possible this great life-saving from surgical operations peculiar to their sex.

16. Post-operative mortality: Reduced to a negligible factor in such conditions as hernia, tumors and amputation of the breast.

17. Blood transfusion: Through animal experimentation has been perfected a method of direct transfusion of blood from person to person. Blood transfusion saves thousands of lives annually.

18. Goiter: A practically safe operation for this condition has been developed with the aid of animal experimentation.

19. Malta fever, formerly a scourge in Malta and Mediterranean countries, India, China,

the United States, Brazil, and the West Indies has been almost completely abolished.

20. Maternity mortality: Childbed fever reduced from ten out of every one hundred mothers to less than one in one thousand.

21. Syphilis: Discovery of remedy to protect innocent wives and mothers and unborn children as well as others in the community at large from the horrible curse of syphilis. The presence of syphilis in patients is now discovered in ten cases where formerly it was discovered in only one. This advance in diagnosis is attributable to animal experimentation.

22. Sleeping sickness: Through experiments on animals our knowledge of the pathology, methods of transmission, and the means of treatment of the fatal "sleeping sickness" has been obtained. Because of the information thus gained successful treatment of this disease is now possible.

23. Glandular therapy: Discovery of the mysterious functioning of various endocrine glands through the medium of animal experimentation has developed information and has brought to the women of this country incalculable relief from suffering from many diseases and conditions incidental to their sex. Millions of women are now spared unnecessary suffering, thanks to animal experimentation.

24. Animal scourges: Knowledge of animal diseases, their causes, treatment, cure and prevention, have been greatly advanced chiefly through the medium of animal experimentation. Such animal diseases as tuberculosis, rinderpest, anthrax, glanders, hog cholera, chicken cholera, lumpy jaw, among others, some of which are conveyable to man, are being overcome successfully through the medium of this experimental service. If the suffering dumb creatures could but speak, they, too, would pray that this good work should continue unhindered. The number of their own kind sacrificed is indeed small as measured against the number of their own kind benefited.

Prevented a More Costly War.—Animal experimentation has provided vaccins, bacterins, and antitoxic serums; it has aided in the development of new methods of surgery and of reliable means of diagnosing infectious diseases; it taught us how to use gases during the war and how to defend our soldiery against them. In the

absence of such knowledge the recent war would have cost additional thousands of lives and would have produced many additional thousands of cripples.

Basic Knowledge.—Animal experimentation has resulted in the following basic knowledge: Circulation of the blood; capillary circulation; the vasomotor mechanism; functions of the nervous system; the flow of chyle in the lacteals; the passage of chyle through the lymph ducts into the venous circulation; the nature of the digestive fluids and chemical transformation of food through their action; functions of the liver, lungs, kidneys, and other organs; the reaction of the cells to various kinds of stimuli; significance of the endocrin glands; nature of inflammation and other pathological processes; and numerous other discoveries in physiology, pathology, and biochemistry.

Action of Drugs.—Experiments with live stock have contributed richly to the current knowledge of drugs and their uses and to the precise information we have of the therapeutic, physiologic, and toxic actions of the innumerable substances from which our useful drugs have been selected.

Without specific knowledge of how drugs act on the body as a whole, or on special parts of the body, and whether their action is immediate or cumulative, the death rate among persons and animals would be multiplied, and the greater losses among the latter would be a serious economic disadvantage.

In April, 1914, when Mr. Rockefeller gave \$1,000,000 for the extension of the work of the Rockefeller Institute to include a study of animal diseases in a laboratory to be established in New Jersey, the antivivisectionists persuaded the Governor of that state to veto the bill authorizing this eminently humane work!

25. Cancer: A rapidly increasing disease awaiting solution. This disease will be conquered eventually through knowledge acquired from animal experimentation. Among women in this country one out of every seven die from cancer and, therefore, anything that will assist in eradicating cancer should be hailed as a civic necessity and should be encouraged to the utmost by all women as well as by all men. As animal experimentation is essential to attainment of requisite knowledge, it stands to reason that all right-thinking people should foster rather than

attempt to disparage the proper conduct of such investigational studies.

In the light of past accomplishments and with awareness of that which is yet to be done, who is there among us who, having love for his fellow men, dare to stay the hands of those who are attempting to lift the curse of disease or aftermath of accident from the shoulders of his fellows? If there be any such inhuman creatures, enemies of our children, of humanity in general and even of dumb brutes, let them stand up and be labeled. Upon these persons, should they be successful in staying the march of medical progress by placing barriers against essential experimentation upon animals, must rest the responsibility of human lives needlessly sacrificed, and of dumb brutes condemned to suffering.

That there are such misguided persons is a community misfortune. They are commonly known as "anti-vivisectionists," but the evil they inspire and the mischief they do is beyond calculation.

Although much has been accomplished, much more remains to be done. Cancer, infantile paralysis, cerebro spinal meningitis, pneumonia, influenza and malaria are among the devastating diseases that are yet to be conquered. The hope for early victory hinges chiefly if not wholly upon further animal experimentation.

As opposed to the extraordinary list of triumphs for humanity, compare the "achievements" of the anti-vivisectionists:

CRIMES OF OMISSION CREDITED FOES OF ANIMAL EXPERIMENTATION

1. Not a single life has been saved by efforts of antivivisectionists.

2. Not a single beneficent discovery has been made by them.

3. Not a single disease has been abated or destroyed or cured by them, either in animals or in man.

4. All that they have done is to resist progress—to spend \$500,000 in thirty years in Great Britain alone, and millions in the United States and elsewhere, and to conduct a campaign of abuse and gross misrepresentation, from which the harvest is easy to prognosticate from present results.

5. They care apparently little or nothing for the continued suffering and death of human be-

ings, or the grief and not seldom the ensuing poverty of their families; provided that twenty-six out of every thousand dogs and cats, monkeys and guinea pigs, mice and frogs experimented on shall escape some imaginary physical suffering. Somehow, antivivisectionists fail to appreciate the fact that millions of animals are spared much suffering as result of animal experimentation.

6. They insist, therefore, that all experimental research on animals shall stop and—astounding cruelty—that thousands of human beings shall continue year after year to suffer and to die, to become invalidated and often not only burdens to themselves but economic liabilities to the community, their families and society.

VIVISECTION BRIEFS

If the scientists who experiment on animals were the cruel, cold blooded butchers pictured by the anti-vivisectionists, even so, yet the animals used by them would be given the greatest possible comfort, and the greatest possible relief from pain and shock and the greatest possible after-care *because the success of the experiment would require that very consideration.*

* * *

Every one who has had his life saved by an abdominal operation should realize that the operation would have been impossible and he would be dead if animal experimentation had not developed aseptic surgery. This applies to many of the infectious diseases, formerly fatal and now amenable to specific treatment, made possible by animal experimentation.

* * *

One horse furnishes antitoxin which saves thousands of human lives—and the horse continues to live with more comfort and better care than many humans about whom anti-vivisectionists do not worry.

A LAYMAN'S DEFENSE OF VIVISECTION

Harry C. MacLeod, S. J., in a recent issue of *America*, is worthy of reproduction. It is as follows:

THE MENACE OF VIVISECTION

To the Editor of *America*:

In the article in *America* for July 21 on "The Menace of Vivisection," by C. H. Robson, I

find the idea expressed throughout that vivisection has done no good. If the writer of that contribution believes that Dr. Hurwitt, in his "vivisection article," did not sufficiently prove his so-called "sweeping statements," then the following data, taken from the Army and the Board of Health reports will substantiate them.

Mr. Robson cited the *Medical Journal* for December, 1922, where Dr. J. Bruce McCreary of the State Department of Health said:

Active as have been our efforts to control diphtheria through laboratory study and diagnosis, isolation of cases and carriers, free anti-toxin and immunization by anti-toxin, the morbidity figures and death rate remain about the same.

To cast no reflection, however, on Dr. J. Bruce McCreary's knowledge, I ask him to recall that the experimentation by vivisection cut the death rate in nineteen European and American cities from 79.9 per 100,000 population in 1894, when anti-toxin treatment first began, to 19 deaths per 100,000 in 1905, and that since that time the dread of the disease has almost reached its nadir. Again he writes:

What little improvement there has been in the tuberculosis situation has been owing to better housing, education of the public, superior sanitary conditions, open air treatment; vivisectional medicine has given us nothing of the slightest value in cure.

This, however, is rather a sweeping statement and it would seem that the writer forgot that vivisection was the first to discover that tuberculosis was contagious. The famous discovery of Koch has cut down tuberculosis from fifty to thirty per cent. And we might add here the reason for our National Board of Health that has insisted on the sanitary conditions that have been enforced. In 1878, no fewer than 16,000 deaths resulted from yellow fever that was common in the United States at the time, with an economic loss of some \$100,000,000. By vivisectional experimentation on dogs the mosquito was found to carry the germs and although Lazear was bitten by one of the mosquitoes and lost his life five days afterwards, Walter Reed perfected the theory and the National Board of Health came into existence.

With regard to typhoid, the German army in the Franco-Prussian War had 73,346 cases,

about ten per cent of the average strength. The Civil War army of the Potomac in four years, from July, 1862, to June, 1866, had 57,000 cases and 53,000 deaths. Then vaccine was discovered and perfected by Gaffky in 1884 and further perfected by Widal in 1888, by Write in 1896-1897, and by Major Russel in 1909. Animals were indispensable to the standardization of vaccine. The result was that in the World War the United States army, protected by anti-typhoid vaccine and therefore immunized, had only 3,756 cases. Although the men were billeted in unsanitary conditions that were favorable to the disease, for instance, at Chateau-Thierry, where they had to encamp on territory evacuated by the Germans, that was rotten with the dead bodies of horses and men, pools of human waste and myriads of flies, yet of those 3,756 cases which occurred between September, 1917, and May 2, 1919, there were only 213 deaths. If this fact is not a glowing testimony to vivisection I do not know what is.

There are countless other facts which could be set down as triumphs of vivisection, but let these suffice, since Mr. Robson mentioned only the above.

Although vivisection has been vigorously opposed, can the anti-vivisectionalists show any result that has accrued to humanity by their efforts? Nothing can be shown to their advantage. The only positive result they can show is an expenditure of over \$500,000 in Great Britain alone to conduct a campaign of abuse and misrepresentation.

I wonder if Mr. Robson should be attacked by diphtheria or lockjaw would he waive all medical knowledge of the cure obtained by vivisection? His first act would be to apply for anti-toxin.

If such men as these would stay the hands of men who have made abdominal surgery, surgery of the brain, chest, heart, lungs and aorta possible, who have reduced the death rate in ovariectomy and found a cure and protection for innocent wives and unborn children and for the community at large from syphilis by 606 Salvarsan and 909, and who may in future banish the terrors of infantile paralysis and scarlet fever and measles from our children, and of cancer from the whole human race, if these men hinder such efforts and do all they can to pro-

hibit them, are they to be considered "benefactors of humanity"?

Woodstock.

AMERICAN COLLEGE OF PHYSICIANS

THIRTEENTH ANNUAL CLINICAL SESSION

Boston, April 8-12, 1929

The American College of Physicians will hold its Thirteenth Annual Clinical Session in Boston, April 8-12. Dr. Charles F. Martin, Dean of the Faculty of Medicine, McGill University, is President of the College this year, and Dr. John H. Musser, Professor of Medicine at Tulane University Medical School is President-Elect and will be inducted to the Presidency toward the end of the Boston meeting. Dr. James H. Means, Jackson Professor of Clinical Medicine at Harvard Medical School and Chief of the Medical Service at the Massachusetts General Hospital, is General Chairman of all Boston committees having charge of arrangements for the Clinical Session of the College in April.

The program provides hospital visits, clinics, demonstrations and ward-walks during forenoons at fifteen different Boston hospitals, and for general scientific sessions each afternoon and evening in the assembly room of the Hotel Statler, which will be headquarters. Eminent authorities in their special lines will present the results of their work before an audience competent to appreciate the value of the contributions.

A Symposium on Deficiencies will take place the first evening of the session, and will be of particular interest because of the fact that deficiencies are nowadays assuming a far more widespread and important role than had heretofore been anticipated. They have come into their own as factors producing acute and chronic disease on a par perhaps with infections. The committee has secured for the program men who can speak with authority on a variety of aspects of this important subject.

Another special feature is a review of the Present Status of Vaccine and Serum Prophylaxis and Therapy, designed to give the internist a rapid survey of the field. The speaker, Dr. Benjamin White, of Boston, is an authority on these subjects and can give the high spots in rapid and yet forceful fashion.

The annual Banquet of the College will be held Thursday evening, April 11, when Dr. George E. Vincent, president of the Rockefeller Foundation, will deliver the chief address. The Convocation, for the conferring of Fellowships, will take place Friday evening, April 12. Dr. Charles F. Martin, of Montreal, will deliver the Presidential Address.

Programs and details concerning reduced fares, admission, etc., may be secured from the Executive Secretary, E. R. Loveland, 133-135 S. 36th Street, Philadelphia, Pa.

CONSTITUTIONALITY OF ILLINOIS MEDICAL PRACTICE ACT

(Ramsey v. Shelton et al. (Ill.), 160 N. E. 769)

The appellant filed a bill for an injunction in the superior court of Cook County, against the director and assistant director of the department of registration and education, the superintendent of registration, and members of a committee styled "professional committee of physicians." The committee was designated by the director of the department of registration and education to hear and make report on a complaint filed against the appellant, to revoke his license as a physician and surgeon. The appellant sought to restrain the appellees from further consideration and hearing of evidence before the professional committee. A temporary injunction was granted, answers were filed, and the cause was referred to a master, who found in favor of the appellant. Exceptions to the master's report were sustained by the superior court, and the bill was dismissed for want of equity. The appellant thereupon appealed to the supreme court of Illinois.

Section 60 of the Civil Administrative Code of Illinois designates the powers of the department of registration and education in carrying out the various statutes relating to professions, trades and occupations. It provides that certain of the enumerated functions of the department shall not be exercised "except upon the action and report in writing of persons designated from time to time by the director of registration and education." It provides further that for medical practitioners the five persons so designated shall be reputable physicians, licensed to practice medicine and surgery in Illinois, no one of whom shall be an officer, trustee, instructor or stockholder or otherwise interested, directly or indirectly, in any medical college or medical institution. The appellant contended that four of the five members of the professional committee were at the time of the hearing connected with one or more medical institutions and therefore ineligible to serve. To this the appellees replied that while members of the committee were connected with various hospitals, a hospital is not a medical institution. It is apparent, said the court, that the legislature intended that a hospital which instructs in the science of medicine or healing comes within the definition of a medical institution. General hospitals not giving courses in medical instruction do not come within the provision of the act, nor do medical societies or hospitals in which instructive lectures may from time to time be read constitute medical institutions where medical science is taught as contemplated by the act. The act must, however, by its most restricted application, be held to apply to medical institutions in which courses of instruction, whether graduate or undergraduate, are given. The Chicago Polyclinic Post-Graduate School (or Chicago Polyclinic) is an institution where postgraduate courses are given in the science of medicine and is a medical institution within the

meaning of the language and intent of the act. Three of the committee hearing the charges against the appellant were at the time of such hearing so connected with the Chicago Polyclinic as to disqualify them for services in that capacity. It follows that the committee was without authority to proceed further with the hearing of the charges. This being so, the chancellor erred in refusing to issue the injunction as prayed.

In urging that the act was unconstitutional, as depriving licentiates of due process of law, it was pointed out that the act did not provide for notice, calling of witnesses, and review by a court. It was held, however, in *People v. Apfelbaum*, 251 Ill. 18, 95 N. E. 995, that the granting and revocation of a license to practice medicine is not the exercise of judicial power as that term is understood in referring to the distribution of the powers of government; that, while in the administration of the law, the state board of health, then charged with the duty of issuing and revoking licenses, necessarily exercised discretion and judgment, and while its proceedings were to that extent judicial in character, its proceedings were not for a court nor appropriate for a court. The revocation of a license to practice medicine is not intended as punishment for any offense, but for the protection of the public by the police power of the state. Due process of law does not necessarily imply judicial proceedings. Orderly proceedings according to established rules which do not violate fundamental rights must be observed, but there is no vested right in any particular remedy or form of proceeding. A general law administered in its regular course according to the form of procedure suitable and proper to the nature of the case, conformable to the fundamental principles of right and affecting all persons alike, is due process. The licensing board cannot from mere caprice, without cause, revoke a certificate. The statute requires a hearing before a certificate can be refused or revoked, and necessarily implies notice of such hearing and an opportunity to defend. The power to revoke a license cannot be exercised except on action and report in writing of five reputable citizens, licensed to practice medicine and surgery, selected by the director of registration and education to conduct a hearing on the charges preferred. Where there is no notice or hearing and a record thereof preserved, the party aggrieved may have a review of the proceedings by certiorari. The contention of the appellant that the medical practice acts of Illinois involved in this case are indefinite and that the terms "unprofessional" or "dishonorable conduct" cannot be made the basis of an action in revoking a license was decided contrary to the contention of the appellant in *People v. Apfelbaum*, heretofore cited.

The decree of the court below was reversed and the cause remanded with directions to grant the relief prayed in the bill.—*Journal of the American Medical Association*, February 16, 1929.

Correspondence

THE DAY IS NOT FAR DISTANT WHEN
THE PUBLIC WILL DEMAND FROM
OUR TAX SUPPORTED INSTITUTIONS
FREE TREATMENT FOR ALL THE AIL-
MENTS TO WHICH HUMAN FLESH IS
HEIR

Drs. Morris and Neece
Standard Life Building
Decatur, Ill.

February 21, 1929.

To the Editor:

We have heard considerable criticism directed toward the University of Chicago on account of its aggressive program and advertising methods. Our local paper of last Tuesday evening carried a full page ad, "What University of Illinois Is Doing to Curtail Human Wreckage" (see below), which I am enclosing. I suppose the object of this is to acquaint the dear public with the work of the University and her larger program and to crystallize public opinion in favor of a tax levy sufficiently large to make this enormous building program possible. It seems to me that the day is not far distant when the public will demand from our tax supported institutions free treatment for all the ailments to which human flesh is heir.

I. H. Neece, M. D.

The following is produced from the page advertisement. The numbers on the following data refer to elaborate pictures of university buildings and individual operators working in the various departments.

The only project of its kind in the world is that backed by the State of Illinois in which the University of Illinois and the State Department of Public Welfare coöperate for the good of humanity. It is located in Chicago and has for its objects (1) to provide medical treatment for charity cases of the State, within the limits of the facilities at hand; (2) to give young men and women training in medical education; (3) to help practicing physicians of the State to keep in touch with the latest and best methods of preventing and curing disease, and (4) to seek to determine the causes of disease and, on the basis of the acquired knowledge, to institute preventive measures.

1. The Research Hospital and University of Illi-

nois medical group as it will look when completed.

2. Incoming Child Patient.
3. Entrance to Research Hospital.
4. Registration Desk of Clinic.
5. "Weighing in" at the Children's Clinic.
6. Clinic Quadrangle.
7. Research Laboratory and Library.
8. Stretching a curved spine in the Orthopedic Clinic.
9. School of Pharmacy of the University of Illinois.
10. University of Illinois College of Dentistry.

PAY PATIENTS NOT WANTED AND ARE NOT PERMITTED AT THE UNIVER- SITY OF ILLINOIS COLLEGE OF MEDICINE

To the Editor:

The College of Medicine of the University of Illinois grew out of the College of Physicians and Surgeons of Chicago. The latter institution was organized in the early eighties by a group of forceful men interested in the educational features of Medicine. They gathered about them men of note in the profession and developed one of the outstanding medical institutions in the Central West. For many years they trained young men for the practice of Medicine in ways that amply qualified them to render professional service to the people. Throughout this country and in the many remote lands of the world are medical men today trained in this College rendering everywhere invaluable service to the sick.

About fifteen years ago, owing to fundamental changes in medical practice and teaching made necessary by the development of medical sciences, the College, like most other medical colleges, arranged for University affiliation. This was consummated in 1913 by the transfer of the property and staff of the old College located at 508 S. Honore St. to the University of Illinois.

The old buildings at the location just mentioned have been used for years to house the class rooms, laboratories, etc., of the Medical and Dental Departments. They were not designed for the purpose for which they have been used, having been built for public school purposes some forty to fifty years ago. At present they are antiquated, and more or less dilapidated, without adequate heating and ventilation facili-

ties and altogether unfitted for carrying on modern medical educational work.

Ten years ago, in 1919, under the Lowden administration, a comprehensive scheme of State cooperation between the College of Medicine of the University and the State Department of Public Welfare was agreed upon. Plans were made, land was purchased, and a group of hospitals erected on West Polk St. just south of the Cook County Hospital, in what has come to be known as the West Side Medical Center of Chicago. The University agreed to furnish the Medical Service needed for such a group and to carry on teaching and to promote the study of disease with a view not only to cure the sick and relieve suffering, but also to do as much as possible to prevent, at the source, the stream of human wreckage entering our various State institutions.

Following that agreement, this plan of cooperation was put into effect and some progress has been made. Certain difficulties have been encountered naturally in the initiation of a scheme as broad and comprehensive as this was. Problems, some political, some administrative, and some medical, have arisen, and no doubt certain changes and modifications will be necessary from time to time.

At the present time one of the most serious handicaps is the necessity of doing a good part of the work of the first two years in the old buildings on Honore St. referred to above. This is true both for the dental as well as the medical work. New improved buildings designed for the needs of the Institution are greatly needed. Attention has been called to this from time to time to the Legislature, to the Board of Trustees, as well as to other agencies. A year ago these old buildings were condemned by a group of Legislators.

The University, therefore, feels amply justified in asking the present Legislature for an appropriation adequate to house the work now done in the old buildings, the plan being to erect new buildings on the site on W. Polk St., south of the County Hospital. Here adequate space is available in close proximity to the Research and Educational Hospitals and the new library. This would not only furnish suitable buildings, but would also bring the work of the various

departments in much closer association with the available hospital facilities than is now possible.

A short time ago a University Bill was introduced into the Legislature, in which there is a request for \$1,500,000 for buildings for the specific purpose of adequately housing the medical and dental departments in improved buildings. Eight years ago a program of development was begun by the University of Illinois and \$10,500,000 asked each biennium since. This amount has been allowed by each Legislature with the exception of 1921, when \$1,640,000 was not allowed. The University is now asking that a part of this, namely, \$1,500,000 for buildings, be restored and used for the Colleges of Medicine and Dentistry in Chicago. Everything considered, this would seem to be an altogether reasonable request. Progress in Medicine and Dentistry has been rapid and will continue to be so in the future. In all of the surrounding States large building projects and adequate medical programs have been launched. At the present time, with our old buildings and equipment, the State of Illinois is rapidly falling to the rear. A State as rich and prosperous and progressive as Illinois cannot afford to do this, and no doubt does not intend to. The members of the Legislature should be urged to support this reasonable request on behalf of Medical and Dental education of the State.

There are other problems that may arise. It is important that the various Hospitals and Institutes now cooperating with the Colleges of Medicine and Dentistry in the Chicago group remain intact. Any effort to dissociate or to develop units either on the part of the University or on the part of the Department of Public Welfare should not be permitted. A unified and properly correlated group of Institutions should be developed and fostered; the primary purpose of all being the welfare and care of the unfortunate wards of the State and the proper training of physicians and dentists and the study and eradication of disease.

Attention is called to the fact that in this group of Hospitals, including the Dispensary which is now operated by the University, only the sick poor of the State are cared for. Pay patients are not wanted and are not permitted in these Institutions and we ask the profession

of the State to assist us in confining this work to charity.

D. J. DAVIS, M. D., Dean

University of Illinois College of Medicine.

MEDICAL BILLS BEFORE THE ILLINOIS LEGISLATURE

The following bills are of more or less interest to the medical profession:

Senate Bill No. 21, Jewell—Creates a sanitary water board to control, prevent and abate objectionable pollution of lakes and water courses.

Senate Bill No. 25, Barbour—Provides for the segregation of persons who are mentally defective to a degree that they have criminal propensities and are a menace to the person or property of others.

Senate Bill No. 40, McCauley—Appropriates \$75,000 to the Department of Public Welfare to provide hospital facilities for ex-service men at the Jacksonville State Hospital.

House Bill No. 12, Soderstrom—Provides for the formation and disbursement of a pension fund for aged persons and prescribes penalties for violation thereof.

House Bill No. 48, Green—Amends sections 1 and 2 of act relating to county tuberculosis sanitarium; increases maximum tax from one mill to one and one-half mills on the dollar.

House Bill No. 49, Jackson, N. L.—Requires shippers, importers and producers of milk imported for sale in its natural state in this State to secure a license from the Director of the Department of Agriculture, such license being subject to revocation or suspension upon a violation of the health provisions therein.

House Bill No. 69, Dixon—Provides for sexual sterilization of inmates of State institutions for the insane, feeble-minded or mentally defective, in certain cases, with the right to be represented by counsel at a hearing before a special board and with the right to appeal, etc.

House Bill No. 89, Smith—Amends section 70 of the act in regard to the administration of estates. Places physicians' bills and hospital expenses in the first class of demands, instead of in the third.

J. R. NEAL, M. D.,

Chairman Legislative Committee, Springfield, Illinois.

EGYPT HAD SEVEN PLAGUES, THE
UNITED STATES HAS THREE (the
white tuberculosis), (the red) UPLIFT
AND (the blue) INDIFFERENT-
ISM THAT ENCOURAGES
THE GROWTH OF THE
OTHER TWO

THE SHEPPARD-TOWNER AND NEWTON BILL
MENACE

Brooklyn, N. Y.

To the Editor:

The following Resolution, presented by me and duly seconded, was unanimously adopted by The Medical Society of the County of Kings (N. Y.) at its stated meeting December 18, 1928. Incidentally our Society has 1,903 wide-awake Medical Citizens whose people have votes, even as you and I—or as yours and mine.

Your readers might be interested and MUST be interested in that third "Whereas" and in Sections 1 and 2 of the Newton Bill upon which it is predicated (Illinois Medical Journal, July, 1928, page 4, column 1, toward the end of Sec. 1, particularly). Illinois (and Massachusetts) and some other States have consistently refused to have any part of the Sheppard-Towner Maternity (Birth-Control) Bill, so if its sponsors could not get their pig over the stile they would bring it under by providing for this partnership between the Children's Bureau of the Federal Department of Labor (using the money of the People of the United States) and a group of Uplifters in the State of Illinois (using the money of a Foundation, for example) and these Uplifters would not need much,—a beggarly \$7.49 per 1,000 of population, about \$50,000 per annum for your present population in Illinois. With the stage thus set and the 50-50 appropriation feature satisfied, independent of State cooperation, I would like some legal light in Illinois (or Massachusetts or elsewhere) to point out to me just how the Executive, Legislative or Judicial powers of the State of Illinois could prevent the operation of this amplified Sheppard-Towner Maternity (Birth-Control) Bill within the State of Illinois (or elsewhere) the Legislature and the people to the contrary notwithstanding. It is my conviction that when this phase is brought home to the minds of the citizens of the State of Illinois (and elsewhere) something will happen that will jar the uplifters' contemptuous

disregard of decency. Egypt had seven plagues, the United States has three—(the white) Tuberculosis, (the red) uplift and (the blue) indifferentism that encourages the growth of the other two. Perhaps this will shake us up:

"WHEREAS, the judgment of THE MEDICAL SOCIETY OF THE COUNTY OF KINGS (N. Y.) in opposing, in 1921, the enactment of the Sheppard-Towner Maternity Bill was confirmed by the A. M. A. in 1922 when it adopted a resolution condemning its administration—and vindicated—when the Congress in 1926 refused to perpetuate its administration and limited it to the definite further term of two years which will end in March, 1929, and

WHEREAS, the friends of the Sheppard-Towner Maternity Bill, unwilling to respect the determination of the people's elected representatives in Congress have determined to perpetuate this part of the work of the Children's Bureau of the Federal Department of Labor and to that end have caused to be introduced, in the Congress, House of Representatives Bill No. 14,070 (May 28, 1928) by Representative Walter H. Newton, of Minnesota, which perpetuates the one million dollars per annum 50-50 appropriation of money; continues the meaningless and ineffective provision against the invasion of American homes by the busybody investigators and whisperers of the Children's Bureau whose activities in the first five years of the Sheppard-Towner Maternity Bill's administration reduced the birth-rate of this country 2.4 to the 1,000 of population, which means 250,000 babies per annum who will never be American citizens—such provisions being meaningless and ineffective because they carry no penalty for such invasion and put it up to the American citizen to protect his home from such invasion either by assault upon the invader or by the very expensive way of a Writ of Injunction, and

WHEREAS, the so-called Newton Bill (H. R. 14,070) goes even farther than the Sheppard-Towner Maternity Bill and provides for a partnership between the United States Government and any group or Foundation, thereby carrying interference, by an employe of a Federal Bureau of a Department of the U. S. Government, into the homes within a State, over the head of the State itself, by way of a private corporation

which is merely a creature of the State by reason of a Charter, and

WHEREAS, the Newton Bill (H. R. 14,070) is subversive of the ideals, traditions and institutions of this Country in that it expands the police power of the State to the point of inhibiting the proper exercise of the triune powers of government—Executive, Legislative and Judicial—and vests all power in an individual or group of individual employees of a Bureau of a Department in the Cabinet of the President and bars the Judiciary from restraining abuse thereof, THEREFORE BE IT

Resolved, that THE MEDICAL SOCIETY OF THE COUNTY OF KINGS (N. Y.), in meeting assembled, December 18, 1928, hereby opposes the enactment of the so-called Newton Bill (H. R. 14,070) introduced May 28, 1928, and urges the Congress (and the members thereof from Kings County in particular) to work and vote to defeat its enactment, and be it further

Resolved, that copy of this resolution be sent to the Congressmen from this County and to the U. S. Senators from New York State and to the Medical and lay press with a request therein implied that they lend their best efforts to the defeat of this vicious legislation."

I shall see that every member of the Committee on Interstate and Foreign Commerce of the House of Representatives shall get a copy of this Resolution to keep company with the copy of my communication to you of July 15, 1928, which you so kindly printed in the ILLINOIS MEDICAL JOURNAL.

Now, if those who read this will wake up their County Medical Societies and their lodges of various Fraternal Societies and their Chamber of Commerce and endorse this resolution or one like it which will point out the contemptuous disregard of decency contained in that 50-50 partnership with busybodies over the determination of the people of a State voiced by their representatives in the Legislature, I believe we will accomplish a great good.

Sincerely,

JOHN J. A. O'REILLY, M. D.

"They say bread contains alcohol."

"Is that so? Let's drink a little toast."—Wash. & Lee Mink.

UNCANNY NUMBERS

In the "Dental Craftsman" for June, 1928, we find some interesting facts regarding the number 9. It was discovered by W. Green in the latter part of the 18th century that by multiplying 9 by any figure the sum of the resultant figures will inevitably add up as 9. Thus:

"Twice 9 is 18; add the digits together, and 1 and 8 is 9. Three times 9 is 27, and 2 and 7 added make 9. So it goes on up to 11 times 9, which gives 99; 9 and 9 added make 18, and 1 and 8 are 9. Go to any extent and you cannot get away from the figure 9. For example, 9 times 339 is 3051; add the digits together and they make 9. Again, 9 times 5071 is 45639; the sum of these digits is 27; and 2 and 7 is 9."—Patchwork.

PAYING HEALTH BILLS FOR AN INCREASING ARMY OF DRONES

Needless charity is the most expensive item of the taxpayers' budget. Alderman G. Edwards of Windsor, Ontario, declares the taxpayer is fed up on digging down to pay health bills of an increasing army of drones. We are going too far. The attitude of the older generation was to save, and lay up for the future, or else do without. It were well if such a policy could be inaugurated today, especially when men drive up to our charity centers and beg for gasoline.

HOW MEDICAL ETHICS MAY BE TAUGHT

It is suggested that instruction in "medical ethics" may be carried on advantageously by (1) a short introductory series of lectures on general ethics by a qualified member of the philosophy department of the University; (2) lectures or readings on the historical development of "medical ethics," and (3) concluding with free discussions, in which the students take part, on practical case histories involving different aspects of etiquette and ethics in medical practice.—Chauncey D. Leake, *B. of the A. of A. Med. Col.*

AN 18TH CENTURY PRAYER

Give me a good digestion, Lord, and also something to digest,
Give me a healthy body, Lord, with sense enough to keep it at its best.
Give me a healthy mind, good Lord, to keep the good and pure in sight,
Which, seeing sin, is not appalled but finds a way to set it right.
Give me a mind that is not bound, that does not whimper, whine or sigh.
Don't let me worry overmuch about the fussy thing called I.
Give me a sense of humor, Lord; give me the grace to see a joke.
To get some happiness out of life and pass it on to other folk.

—The Churchman (New York).

Original Articles

RADIATION THERAPY IN MALIGNANT DISEASE WITH SPECIAL REFERENCE TO THE SATURATION METHOD*

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The use of the Roentgen rays and radium singly or combined has become recognized throughout the world as a method of value in the treatment of malignant disease. This truth is demonstrated by the fact that no institution intended for the treatment of malignant disease is considered properly equipped unless there is a very elaborate x-ray equipment installed and especially designed for the treatment of malignant disease. When this equipment is properly installed, it involves a considerable outlay of money, and occupies a considerable portion of valuable space in the hospital. Furthermore, any institution intended for the treatment of cancer must have a considerable amount of radium, which involves even more outlay of money. If these agents had not been proven of definite value, the managing boards of hospitals would not be spending money in this manner.

Further, no institution for the treatment of cancer is efficiently managed, unless there is a trained staff of physicians and nurses, or at least one experienced radiologist, especially trained in the use of this equipment, for such equipment is of no more value and will produce no better results than will a complete set of surgical instruments and a fine operating room produce good surgical results without a trained surgeon.

The value of radiation in the treatment of malignant disease is recognized today by every intelligent and well informed surgeon. This value of radiation treatment of malignant disease has been established in spite of many obstacles; such as:

1. At the beginning, radiation treatment was reserved for the hopeless or recurrent cases, and in great part that is true today. Every one, who has studied cancer, knows that it is much more difficult to get a patient well of cancer in the late or recurrent stages than at the beginning, no matter what method of treatment is used.

Yet in spite of this difficulty of dealing with late cases good results have been produced.

2. Twenty-five or thirty years ago, when radiotherapy had its beginning, no definite technique had been established; there were many blunders; there were many bad results and a few good results; there were few scientific principles to guide us; there was no carefully conducted experimental work to establish facts, and each physician had to work out his problems by himself.

3. There was often a definite antagonism on the part of the surgeons. This skepticism was in part justified by the results of bad judgment, bad management and lack of skill and experience which the surgeons recognized.

In spite of all these difficulties the value of radiation in malignant disease has been established, which proves an inherent value.

Through the strenuous efforts and sacrifices (in many cases martyrdom) on the part of the early workers who became hopeful because of improvements in advanced cancer, and enthusiastic because of a few cures, a valuable technique has been developed; specialists in radiology have developed; national organizations of radiologists have been formed, at least four of which hold annual meetings lasting from two to four strenuous days and nights with full programs; even the individual states and most large cities have local organizations which devote much time to the study and discussion of the many problems that are involved in radiology.

As a result of all these efforts, radiation therapy is recognized by the profession and has made definite progress. It now becomes a problem to find its definite place in general and in the individual case, and to determine the best technique to be used. *Today, when there is sufficient skill and equipment available, I believe, that radiation therapy is the method of choice in the treatment of malignant disease of the skin, of the mouth, and of the cervix uteri.*

CANCER OF THE SKIN

With the knowledge now available, *practically all cancers of the skin should be gotten well, if treated while they still involve only the skin.* When cancer of the skin has extended into the deeper tissues the greatest skill is required in its treatment: a combination of electro-coagulation and radiation is usually necessary, and fail-

*Presented by invitation before the Section on Radiology of the Illinois State Medical Society at its Annual Meeting, May 9, 1928.

ure is not uncommon. Most lesions of the skin should be recognized and treated properly before they have become cancerous. Therefore, I have been recommending the complete destruction by electro-coagulation of such precancerous conditions as keratoses, warts, moles, chronic fissures, and local degenerative changes as soon as they are brought to the attention of the physician. This should be thoroughly done, under local

the beginning. Therefore, when the lesion is small and strictly localized, a single massive dose will give the best results, because one can in such instances safely use a destructive or overdose. When, however, the lesion is large and the surrounding tissues must be conserved the "Saturation Method" will give the best results even in skin cancer, but especially in deep seated cancer.

The Saturation Method of Radiotherapy. The "Saturation Method" in Roentgentherapy in connection with skin disease was first described in a preliminary paper by Kingery¹ in 1920, and further developed by me² to include deep Roentgentherapy and radium therapy as applied to deep seated malignant disease, and presented before the First International Congress on Radiology in 1925. In principle, the "Saturation Method" consists of the delivery into the diseased area of the maximum amount of radiation that can be tolerated by the normal surrounding tissue, and in maintaining this effect by additional smaller doses for a period of time sufficiently long to destroy the disease and not to permanently damage the surrounding healthy tissue.

We know from clinical experience, that malignant cells are most sensitive to radiation at the beginning and that this radio-sensitivity is gradually lost after a period of time, which is variable with the type of tumor. We also know from experimental evidence, that cells are most sensitive to radiation during the process of division.

Perthes³ made the observations in 1903 that *the time of cellular division is the moment of greatest radio-sensitivity of the cell.* Regaud⁴ and Nemenow⁵ by carefully conducted experiments have confirmed this observation. Regaud has also made another deduction of great practical importance. "All other factors remaining the same, the duration of the treatment has an important bearing on the efficacy of a selective radiation."

For these reasons, it is the aim in the "Saturation Method" to maintain this maximum tolerance effect for a sufficient time to destroy all of the dividing cells. The essential period necessary for this in each instance is not yet known. We have learned, however, that it is approximately from one to three weeks. This period will surely vary with the type of tumor. Some-

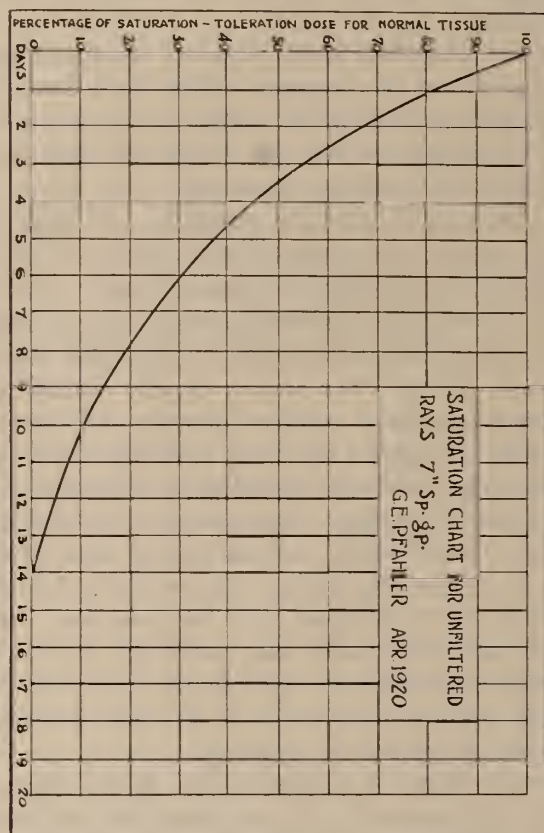


Fig. 1. Saturation curve for use with unfiltered rays, using from 7" to 9" parallel spark gap, for superficial skin effects. Determined upon the basis of a repetition of a full erythema dose in approximately fourteen days.

anesthesia and at one sitting. A mole should never have to be treated twice.

When cancer has actually formed, I still believe that the best, quickest and most economical method is the local destruction by electro-coagulation, associated with radiation. When, for cosmetic reasons, or when the disease involves the eye-lids, the most satisfactory results will be obtained by the application of radium, and next best by the Roentgen rays. Skin cancer like all other cancers are most sensitive to radiation at

times further treatment seems advisable even after an interval of one to three months.

In all instances, one must keep in mind continually the total effect on the normal tissue and essential organs, as well as the effects on the tumor. One must therefore keep a most careful record of the amount of radiation that has reached the tumor area, as determined by the saturation curves which I have found workable. We have learned that normal tissues that are well supplied with blood will stand more radiation than those with a poor supply. Therefore, when radiating through fatty tissue, if large in area, one cannot exceed a total of 200% of an erythema dose without some risk, while a small tumor located in tissue which is well supplied by blood will stand twice or three times this amount.

The successful practical application of this method demands:

1. *An accurate diagnosis must be made*, not only as to the presence of malignant disease, but its extent, and the special type of tumor or its special characteristics, as determined by its history and the pathological history and nature of similar growths.
2. The relation of the tumor to surrounding essential organs which must be protected during the radiation.
3. The radiation must be carefully measured as to quantity or intensity, as to quality or penetrative value, and as to distribution. The beam of rays must be so directed that normal tissue will receive a minimum, and the tumor a maximum. The possibility of an excessive dose at the convergence of two beams at a deep point as emphasized by Holfelder must be considered and avoided.
4. The effect on the blood must be observed. This demands a complete blood count at the beginning and at intervals thereafter.
5. Daily treatments with moderate doses seem to be more effectual on the tumor, and less damaging to the general health of the patient.
6. The special saturation curve must be chosen according to the quality of radiation used.
7. I have not yet been able to determine the essential factors to produce a curve for pure gamma radiation, but a combination curve has been developed empirically for the combination

of radium and high voltage x-rays in the treatment of carcinoma of the uterus.

8. In giving radiation treatment the greatest care is necessary to keep the patient's general health in good condition. All symptoms must be relieved so far as possible; all infections treated; diabetic tendencies guarded; and the general strength conserved so far as possible.

It will be seen, therefore, that this method is

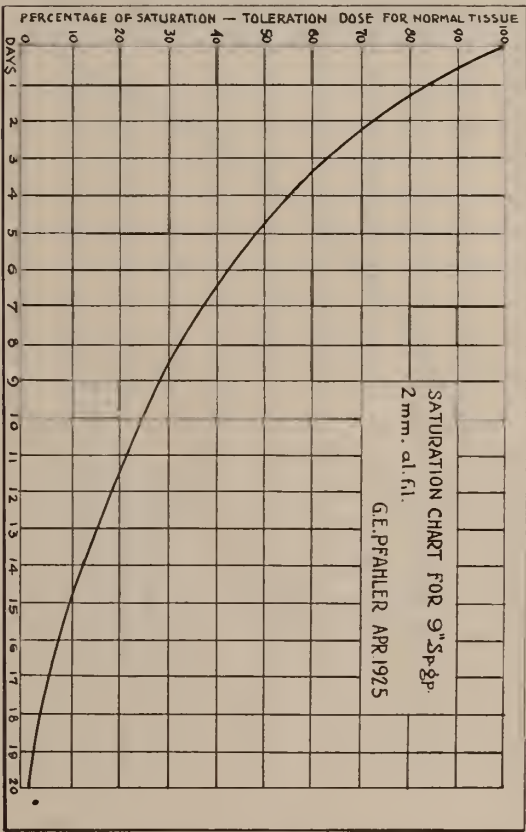


Fig. 2. Saturation curve for moderately soft rays, using a potential equal to 9" parallel spark gap, 2 mm. of aluminum filter, based upon a time interval of three weeks.

not a multiplication table, but a mere outline which will give success in proportion to a physician's general knowledge of medicine, pathology, physics, radiation and care and skill in the application of this knowledge.

HOW THE SATURATION CURVES ARE DETERMINED

The saturation curves are based primarily upon clinical observation. Early in radiation therapy, when unfiltered rays only were used it was observed by many that an erythema dose could be given, and at the end of about two weeks

the visible effect had practically disappeared. At that interval of 14 days, such a dose could be repeated. It was assumed by Kingery that these biological effects as applied to the skin were recovered from more rapidly at the beginning so that the recovery value followed a logarithmic curve. He tried this out in skin disease and found that the theory worked out practically.

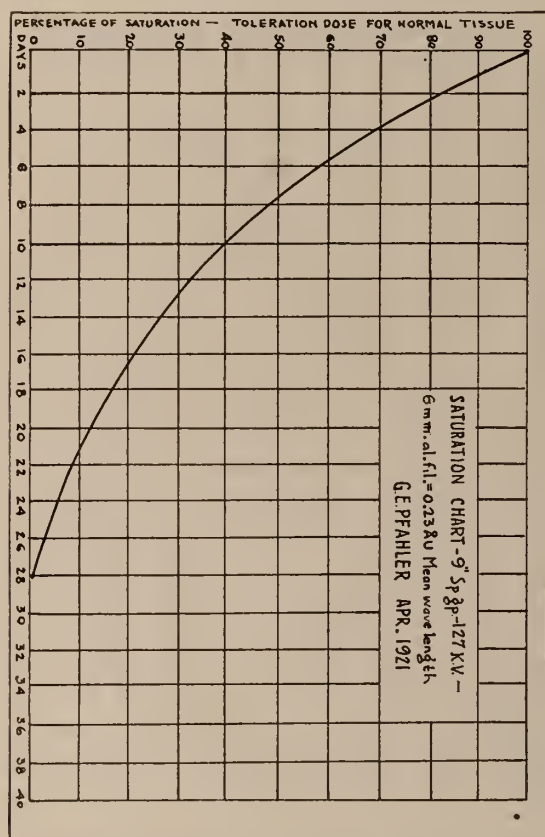


Fig. 3. Saturation curve for use with moderately hard rays, using a potential equal to 0" parallel spark gap, 6 mm. filter giving rays having a mean wave length of approximately 0.23 Å. U. Based upon a repetition interval of four weeks.

I reasoned then that if these biological effects work out in this manner in skin disease with unfiltered rays, it should work also with filtered rays in more deeply situated disease, by using an appropriate curve.

In 1905⁶ I first recommended the use of a filter. At that time I recommended the use of a leather filter. This was soon replaced by the use of one or more millimeters of aluminum. We all observed that this increased the amount of radiation that could be given before an ery-

thema dose is reached, but that the interval for repetition must also be increased. This interval must be prolonged in proportion to the amount of filter.

Therefore, applying the same principles, and assuming that 50% could be added in one-fourth of this interval and 75% in one-half of the interval, the subsequent curves for filtered rays were prepared. For 125 K. V. the interval for 2mm. aluminum filter was found to be 3 weeks, for 6 mm. aluminum 4 weeks, and for 200K.V. and 0.5 cu. filter, the interval was found to be 8 weeks. Weatherwax has shown these curves to be correct from a physicist's standpoint.

It should be the aim to deliver at least what we have learned to call an erythema dose into the tumor area through one or more fields in the shortest time possible consistent with the general health and local conditions. The rate of recovery is estimated from the curve, and supplementary doses are added to bring the dose to 100, from day to day, or at longer intervals, according to circumstances.

When deep seated disease is being treated the most penetrating rays available should be used. If the gamma rays of radium are available in sufficient quantity and if they can be controlled, so as not to harm other organs, they should be used. No matter what form of treatment is used in malignant disease, the earlier the patient is treated, and the less the extent of the disease, the better will be the results.

THE PRACTICAL APPLICATION OF THE SATURATION CURVES

In the practical application of these curves, all of the principles of radiotherapy must be kept in mind. In general, for the treatment of malignant disease, after determining its extent:

1. One should consider the portals of entry of the rays which will best give a homogenous distribution of the rays throughout all parts of the tumor, also the number that are necessary to deliver at least 100% into the tumor without giving more than 100% in the normal tissue.

2. One should consider the relative importance of the overlying organs and tissues so as to conserve them as much as possible.

3. The saturation value, and the total amount of radiation in the tumor area and in the overlying skin must be estimated and recorded.

4. Beginning with the first dose which may

be from 20% to 100% on one portal, according to circumstances, the amount of radiation reaching the tumor area must be estimated and on the second or subsequent day one reads from the curve the percentage of recovery, and adds additional treatment which may be repeated daily until 100% is reached on the curve in the tumor area, or on the skin at each portal of entry. This will usually require from several days to a week.

5. The 100% value is then maintained in the tumor area for from one to three weeks, limiting the effects on normal tissue so far as possible.

6. If the 100% must be reached by small doses, because of constitutional effects, then the saturation value cannot be retained long or the total values of radiation will be excessive. Therefore, no rule can be laid down, but clinical judgment must be used continually. At times one must choose between the risks of the disease and the risks of damage.

CARCINOMA OF THE BREAST

In carcinoma of the breast, radiation treatment should be considered in relation to surgery. If cancer of the breast can be recognized while it is strictly local, there should be no delay in the immediate and complete removal. The good results from surgery in such early cases have been established beyond doubt. It has been shown that from 70 to 100% recover, depending upon the degree of localization of the cancer. If, at operation, the disease is found to have extended beyond the breast, then post-operative x-ray treatment should be given as soon as practical, which is usually within two weeks. Unfortunately today, only about one case in five comes to the surgeon in the early stage, when the cancer is strictly localized in the breast. When the disease has extended even to the axilla the recoveries fall to about 20%, or about one in five.

Therefore, when the disease can be palpated deep in the axilla, the coracoid region, or the supra-clavicular region, preoperative radiation should be considered.

Preoperative Radiation in Carcinoma of the Breast is used in two ways, and should be chosen according to the conditions which are present:

1. If the surgeon believes that he can remove all macroscopical disease, then a course of preliminary treatment, especially directed to the likely lymphatic extension should be given. This

will usually require a period of two weeks, and will delay the operation to this extent. This treatment in no way interferes with the operation or the healing of the wound, providing it is terminated two to three days preceding the operation. It is intended to devitalize the outlying cancer cells, as well as those within the breast and thus prevent their extension and implantation during the operation.

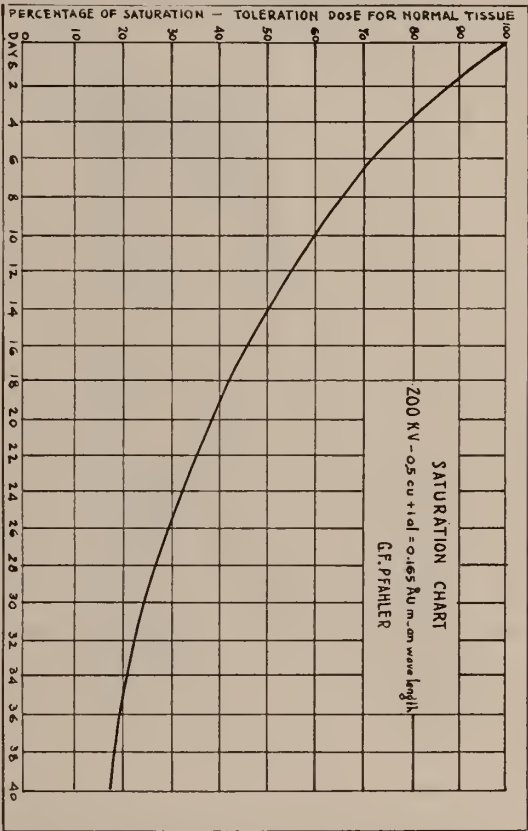


Fig. 4. Saturation curve for use with hard rays having a mean wave length of approximately 0.165 Å. U. (200 K. V.—0.5 cu. 2 a.) and based upon the interval between two full erythema doses of a period of eight weeks.

2. If the surgeon believes that he cannot remove all of the disease as in cases with infiltration in the coracoid region or supra-clavicular nodules, then the patient should be treated over the breast, axillary, coracoid, supra-clavicular region, and mediastinum during a period of about three or four weeks, and then after two or three months from beginning treatment remove the remaining disease. Frequently the outlying lymph nodes and disease will have disappeared, but only rarely will all evidence of dis-

ease in the breast disappear. In such cases, it is often practical to remove only the breast.

Our records show that in the cases in which there are glandular involvement in the axilla, as a result of post-operative treatment 46% are free from gross evidence of disease at the end of five years, as compared with an average of about 20% as reported by different authors in cases

was only microscopical instead of macroscopical.

We are most enthusiastic concerning the post-operative treatment of carcinoma of the breast. This is justified by the fact that when axillary glands are involved more than twice as many patients are well at the end of five years as compared with surgery alone in the same type of case, and as is shown by the following table.

Statistical Study of Radiation Therapy in Eight Hundred and One Cases of Carcinoma of the Breast, by G. E. Pfahler and B. P. Widman. The American Journal of Roentgenology and Radium Therapy; Vol. XIV, No. 6, December, 1925, Pages 550-562.

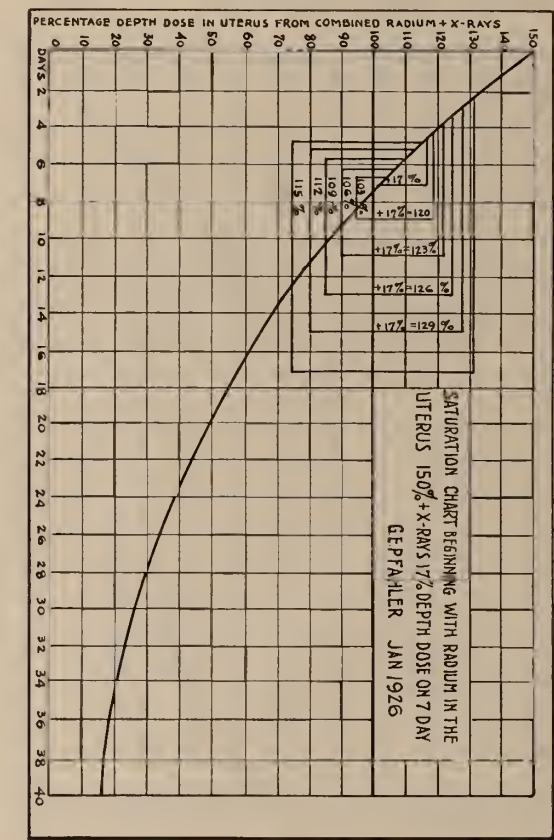


Fig. 5. Saturation curve for a combination of the intra uterine application of radium (gamma rays) and the use of high voltage x-rays externally. With gamma rays, one can safely give 150% of an erythema dose within the uterine canal, and the effects within the uterus can be continued by the external radiation. At the same time a greater effect is produced upon metastasis in the pelvis. The 17% is based upon a 34% depth dose at 19 cm. and a 50% surface dose on one of 3 portals of entry, on alternate days or half this quantity daily.

treated by surgery alone. This latter observation proves definitely the value of post-operative x-ray treatment. All of you have seen the disappearance of carcinoma which had recurred following amputation of the breast. Anyone can surely understand that it would have been easier to cure this disease if it had been treated while it

COMPARATIVE VALUES WITH OTHER CLINICS AND METHODS

	(Operable Cases)			
	No glands	Alive 3 years with glands	Alive 5 years no glands	Alive 5 years with glands
*Greenough	47%	19%		
*König			100%	39 %
*Bloodgood			70%	20 %
*Lee				15 %
*Finsterer				4.3%
*Doederlein			46%	5 %
†Doederlein			48%	20 %
‡Doederlein			80%	36 %
¶Wintz			77%	48 %
§Schmitz			64%	42 %
§Pfahler and Widman....			68%	46 %

*Surgery.
†Surgery and radiation not completed.
‡Surgery and radiation totally completed.
¶Surgery and radiation both groups.
§Surgery and radiation.

CARCINOMA OF THE UTERUS

Seuffert⁷ in reviewing the material in the Doederlein Klinck found that in the general cervical carcinoma if treated by radiation, while in the operable stage 48% were well at the end of 5 years as compared with surgery 46% studied in the same clinic, while if one only counts those which completed their radiation treatment, 80% were well at the end of 5 years. *This means that the individual woman who gets skillful radiation treatment, and carries out all instructions has an 80% chance of recovery, providing she is treated thoroughly from the beginning in an early stage.*

Recently Heyman⁸ has made a rather extensive review of the 5-year results in the operable and borderline cases as recorded in literature. Only about 30% of all cases that apply for treatment are in the operable stage, leaving 70% for which there is nothing but radiation

treatment left, or possibly combined with the injection of one of the heavy metals.

Heyman—Act. Rad. Vol. XIV, No. 5, Nov. 25, 1927. Table 2.

Cancer Colli Uteri; 5 year results with radiological treatment in operable and borderline cases.

CANCER COLLI UTERI. 5-YEAR RESULTS WITH RADIOLOGICAL TREATMENT IN OPERABLE AND BORDERLINE CASES

No.	Author & Clinic	Year of	Published in Public	No. treated	Oper.		No. rec.	Rec. %
					& border linecases	%		
1	Schulte (Baisch), Stuttgart.	1924	Arch. F. G., Vol. 121, page 446.....	198	101	51.0	24	23.8
2	Kehrer, Dresden	1922	Arch. F. G., Vol. 117, Kongr. p. 261.....	129	59	45.7	24	40.7
3	Regaud, Paris	1926	Rapport au Congr. a Rome, 1926, Brüssel.....	201	181	40.3	15	18.5
4	Scholten and Voltz (Döderlein) München	1925	Munch. M. W. 10. 1, p. 6.....	1,068	357	33.4	110	30.8
5	Eymer (Menge)	1926	Strahl., Vol. 24, p. 149.....	203	63	31.0	35	55.6
6	Radiumhemmet, Stockholm.....	1927		500	144	28.8	64	44.4
7	Ward & Farrar, New York...	1926	Rpt. Women's Hosp., 1923-1924, p. 34.....	76	18	23.7	9	50.0
8	Healy, Memor.	1924	Canadian Practitioner, March	153	34	21.9	8	23.5
9	Wintz Erlangen	1925	Deutsch, M. W., No. 1, 1.19.....	415	89	21.4	29 of 55	52.7
10	Schmitz, Chi.	1925	Jour. Am. Med. Assn., Vol. 84, p. 81.....	103	18	17.5	9	50.0
11	Schweitzer	1921	Strahl, Vol. 12, p. 501.....	49	8	16.3	2	25.0
12	Clark & Block.....	1924	Am. J. Ohst. and Gyn., Vol. VII, No. 5.....	144	22	15.3	6	27.3

CANCER OF THE MOUTH

I have become rather enthusiastic in the treatment of cancer about the mouth, since I have been depending almost entirely upon the surface application of highly filtered radium, applied both internally and externally during a period of about a month, on the principle of the "Saturation Method." No definite rule of technique can be laid down, because no two cases are alike, but we treat to the limit of normal tissue toleration, using gaama rays filtered through the equivalent of from 2 to 4 millimeters of lead.

I have not used this method long enough yet to give satisfactory statistics, but I get the impression that in the average case there should be a 50% chance of complete recovery and in the early case there should be a 75% chance. I have worked with cancer of the mouth for 30 years, but my results now are so much superior to all methods used by me previously that I feel like apologizing for my enthusiasm.

SUMMARY AND CONCLUSIONS

- 1. Radiation therapy has been recognized as a definite method in the treatment of malignant disease, and is superior for the treatment of cancer of the skin, the mouth, and the uterus.
- 2. The saturation method is, in my opinion, the superior method. It depends upon a prolonged effect of the radiation upon the malig-

nant disease, to the limit of toleration of the surrounding normal tissue.

3. The method combines and makes necessary the greatest amount of knowledge concerning malignant disease, and the principles of the distribution of the radiation.

4. If all the knowledge that is now available

is utilized we should cure practically all cancers of the skin (if treated while they are confined to the skin); 70 to 100% of cancers of the breast (if operated upon while still confined to the breast) and 46% if operation is combined with radiation, even after there are lymph nodes in the axilla, 50 to 75% of cancers of the mouth should be cured if treated early and thoroughly by gamma radiation; and 48 to 80% of cancers of the uterus should be cured if treated thoroughly and skillfully by radiation, in the earliest stages.

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7. Seuffert—Strahlen Tiefen Therapie, pp. 482, Berlin, 1923. Verlag, von S. Karger.

DISCUSSION

Dr. E. G. C. Williams, Danville: I present whatever discussion I have of Dr. Pfahler's paper in order to present to him and to you my attempt at an application of the saturation method in my own work.

While listening to Dr. Pfahler I have seen some of my ideas shot thoroughly full of holes because I was not applying as he is applying. To review a wee bit, I did x-ray therapy during 1916, 1917, 1918, 1919 and 1920. In 1920 I became disgusted and quit. We were not measuring dosage. It was hit and miss, and was unsatisfactory to a person with a mathematical turn of mind.

In 1923 I saw some publications on the measurements of dosage. I became interested again and started again in x-ray therapy, using, up until the first of January, the E unit as described by Beets and Arens in 1923 or 1924.

With the description of the R unit, I prepared to switch to this the first of January of this year. I also became interested in the saturation method and said that beginning the first of January some things would be done. One was that in the starting of any deep radiation I was going to predict before starting what was to be done to that patient. You all know what we have been doing. We have given a fraction or a part of an erythema dose at a certain wave length. The patient comes back a few days later. He has had some reaction and we change our ideas a little and we change our treatment a little.

As we look back over our records, many of us find that we used this voltage and this filter three weeks ago; the next treatment we changed a little, and so forth. I felt that this could be predicted—what we should do—and we could stay with it.

In my radiation work I use six definite wave lengths, graduated from the .165 Å. of the half millimeter of copper, down to the long wave length of seventy-five kilovolts unfiltered. Dividing this into an increasing wave length, it gives us a type of radiation that will be absorbed in its greatest amount at different depths. From the long wave length that is absorbed mostly on the skin, to a subcutaneous and then where I will get my greatest absorption at five, at seven and a half and ten centimeters depth. I rarely ever attempt anything where I expect much absorption over ten centimeters. We have it to do at times.

These are numbered as waves one, two, three, four, five and six, with rounded portals of ten centimeters diameter, fifteen centimeters diameter, twenty centimeters diameter and a small one that will be used for any kind of a small portal for the dermal destruction work. So that when I say I use wave 2-B, I mean that I am using a wave length of .175 with a fifteen centimeter portal.

I have with my six wave lengths and my three sized portals, eighteen available modalities varying in intensity and absorption with voltage, etc.; varying in surface intensity considering back scattering, with the size of the portal.

These I am gradually plotting so that I hope by the

first of next year to have all the figures on all of these wave lengths in a concrete form.

So that with 2 B I have a surface intensity of 18.5 R units per minute.

We prepared a card to start using the first of January, where I would apply this saturation dosage. The card is salmon colored to distinguish it from the others. We have a scratch sheet that carries both sides of the card. If Dr. Goodwin will give us the lantern slide, I will give you the method we have used of applying and predicting treatment before we start with the patient.

This is a patient with carcinoma of the uterus that was referred to me for x-ray treatment following radium treatment. I wished to predict treatment in this case. What am I going to do? There is no need for haphazard work, so in the measurement of my patient I find that from two anterior portals and a posterior portal I have approximately ten centimeters from the surface to the center of the mass, which we call our depth center, and all treatment is aimed at this depth center.

I want to put into this depth center such an amount of radiation as would be normally expected to give me a definite change amounting to degeneration or necrosis of this mass. With the wave length and with the modality which I choose to use, 2 B, or the wave length, .175 and 15 centimeter portal, we have found that it requires practically 700 R to give an erythema dose on the skin.

That is the last that I shall mention erythema dose. I do not like the word. I prefer to say skin tolerance dose. The further we get away from erythema and burns in our talk, the better off we are.

I am aiming my treatment at the center of the mass and not the skin. Therefore I will divide it into the necessary portals to put that amount of radiation at the depth center, and I want 700 R there as nearly as possible. I cannot do that through one portal because my depth value at 10 centimeters is only 29 per cent. of what it would be on the surface, so it would require an enormous amount on one portal. I divide into three portals.

This is my prediction of the treatment: Two anterior, one posterior. I am using my wave of 2 B on all of these. The depth value on all this at 10 centimeters' depth center is 29 per cent. Dividing up my 700 R, I am going to put 225 down through portal 1, 225 through portal 2 and 250 through B. In order to do this, I must place on the surface at 1, 770 R because it is only 29 per cent. of the surface value; 770 at 2, and 850 at 3.

I am ready to start with my patient. On the first day I start with the portals 1, 2 and 3, to give a dosage to see how my patient is going to get along. My intensity with modality 2 B is 18.5 R. I give ten minutes' treatment or 185 R on each of these three areas and ask my patient to return three days later.

On the fifth day of April, when the patient returns, my first treatment on the surface was worth what? According to Dr. Pfahler's curve, my three day value is 152 R, remaining active on that surface out of the

185 and my total valuation with the added dose on this day is 370 R on one and two and only 185 on three because my patient is getting considerable reaction.

With a total dosage at this time, valuation on the surface of 522 R, four days later my four day value is 390. I add 380, bringing my total on the surface to 770, my predicted. I have put 225 to the depth center through area 1 (at least I think I have) and a total amount of radiation on the surface of 935 R.

The same thing on three. I have not completed through my other portal in two other treatments. I bring my total surface radiation to 850 with a dosage at the center of 250, or I have my total depth value of 700 R, figuring the destruction of x-ray or retention at depth center even as I figured at the surface.

I know this is not the true saturation method, but it is a method that appeals to me of applying the saturation dosage to placing a definite amount of radiation at a given depth.

Dr. R. T. Pettit, Ottawa: Just a thing I would like to mention that I forgot. That is that Dr. Pfahler's ideas are in general use in clinics that I visited in Europe.

I thought you would be interested in knowing that.

Dr. E. S. Blaine, Chicago: I'd like to know what Dr. Pfahler's experience has been in practicing this saturation method of x-ray dosage which to me seems to be so logical and well thought out. Having in mind the desired biologic end result of the death of the pathological cell, this seems to me to offer great possibilities in therapy.

How far does he push the treatment continuously, particularly in deep seated lesions? Does he repeat this saturation of the tissues once, twice, three times if he is dealing with a very resistive lesion? We believe that some lesions are radio-resistive while others are radio-susceptible, the latter requiring less x-ray therapy than the former to affect a cure or a maximum benefit. Will daily applications of 10% of the initial dose for 3 or 4 weeks bring about the desired result?

Dr. H. Olin, Chicago: Mr. Chairman, I'd like to ask Dr. Pfahler, in the average case of deep therapy, deep-seated pelvic lesions, say, what he considers the average hundred per cent. dose—if he starts out using the hundred percent.? What does that mean in terms of kilovolts? And filtration? And time? Either expressed in R units or otherwise. How soon after dose he use a ten or fifteen or other fractional dose? How long does he continue that?

Then, when he considers a rest period, how long would that rest period be?

Dr. R. T. Pettit, Ottawa: I have been so much interested in this work of Dr. Pfahler's. I have read the articles in the *Journal of the American Roentgen Society* and Dr. Weatherwax's article, which I think was published in *Radiology*.

About a little over three months ago I spent a day with Dr. Weatherwax at the Philadelphia General Hospital watching the cases being treated and going over the method with him. Frankly, it seems to me that the Regaud plan of treatment as Dr. Pfahler has mentioned, is just as applicable to the use of Roentgen

rays as it is to the use of the gamma rays of radium; that we have to deal with a time factor and that this time factor is just as important in Roentgen rays as it is in the use of small dosage of radium over a long period of time in contrast to the plan of using an extremely heavy dose of radium over a very short time.

The experimental proof of Regaud's original contention that cells are more susceptible during mitosis is extremely difficult. Clinically, however, some of the work I observed recently at Brussels has convinced me that in the mouth and around the mouth truly remarkable results can be achieved by the use of small doses of radium applied in days rather than hours. This really is an application of the saturation method of radiation.

The difficulty of the application of the method as it applies to Dr. Williams and myself here (and Dr. Pfahler undoubtedly has the same difficulty to meet, because all his patients do not come from Philadelphia) is getting patients to return every few days for treatment over prolonged periods of treatment.

I question very much whether Dr. Williams or even Dr. Pfahler in his practice, can carry out this ideal application of a hundred per cent. saturation.

I would like to ask Dr. Pfahler a question. He believes that the upper limits of total radiation to be two hundred per cent. of an erythema dose or twice 700%, which would be 1,400 R in a given length of time, say twenty days, if 700 R represents what we call an erythema. That would be 1,400 R, in the period of time of say fourteen to twenty days.

I would like to ask what interval or rest period he would allow before he would give another course of treatment. Certainly it would be a number of months, but what are his ideas regarding the length of time?

I certainly believe that this plan of treatment represents a decided advance in radiation therapy and wish to congratulate Dr. Pfahler on his work and thank him for what he has given to us here today.

Dr. Williams' card looks extremely practical to me, much more practical, I believe, than Dr. Weatherwax's chart. It is certainly a lot less work to put down figures on a card than to draw lines on a chart.

Dr. Goodwin, Peoria: I would like to ask Dr. Pfahler if he still is using that same prescription in his erythema cases since deep therapy has been used. He used to have a certain prescription that was used externally.

Dr. Olin: At a depth of ten centimeters from the skin, what does Dr. Pfahler find is the greatest amount of depth dose he can get into the tumor mass without going beyond the two hundred per cent. value of the skin, especially in the fatty tissue?

Dr. Archibald: I'd like to ask Dr. Pfahler how I can get his curves.

Chairman Swanberg: I would like to ask Dr. Pfahler his criticisms or comments concerning the work of Drs. Clark and Morgan of Philadelphia, who have been advocating a modified saturated method of treatment consisting of daily applications of small doses of

ray over a considerable period of time (three or four weeks).

Dr. Pfahler: Answering the last question first, these curves were presented at the International Congress in London and were published in the *Journal of Radiology* published by the British Institute, but on account of the delay in getting that out, as I knew there would be, I got their special permission to have the article pre-printed and I distributed at least a thousand to the radiologists throughout the country immediately before it was even published, but it is published in this *British Journal of Radiology*. That is the first group.

I presented them and they are re-published in the *American Journal of Roentgenology and Radium Therapy*. They are in that envelope and will ultimately be published, I presume, in the *Illinois Medical Journal*.

It is a very simple matter to draw up your own curves. I have shown you how it is done so there is nothing to it excepting getting some paper and drawing it.

This question of how much radiation you can get in any particular ten centimeter depth—that depends on how many portals of entry you use and how much cross-firing you use, but the aim is to get at least as much as you get at any of the portals of entry so that if you are giving two hundred per cent. on the surface, you ought to be able to give two hundred in the depth. That is my general aim.

Now along the same line, I appreciate very much what Dr. Williams has presented. In his example case I personally would have carried that saturation along at least another hundred per cent. of what he has given it and he could have done that in every average abdominal case without harm. That would give you approximately two hundred per cent. on the surface and approximately two hundred per cent. in the depth. I think generally speaking you will need two hundred per cent. to cure carcinoma of the uterus. That depends upon the sensitivity of the type of tumor.

I said limit of two hundred per cent. That applies to areas where you are treating, as an example, through the uterus, through the abdomen, but I say again where you are treating smaller areas, for instance a tumor about the face, if you will protect the larynx and some of those especially sensitive organs, you can give considerably more, so that within a period of four or five weeks I have given as high as five hundred per cent. through one area.

That gives you, at least in the type of tumor that I had in mind, two or three hundred per cent. in your tumor area. So you have to adapt yourself. I can't lay down any rule. You have to take into account the values and risks you are taking all the time.

Dr. Swanberg asked me the question about what I think of the Morgan and Clark technique, or the Clark and Morgan technique. So far as I know, they have described three cases in which they got results and those three cases I think were first described three years ago. I haven't seen any other cures claimed, have you, Doctor?

Dr. Swanberg: No.

Dr. Pfahler: As a matter of fact, all those patients had a great deal of radiation preceding, and you had there an accumulative value. You have this advantage. They treat the patients twice a day. I have mentioned the reasons for having treatment twice a day. If it isn't too much trouble to you and the patient, and where you have the patient in the hospital and it is all convenient, I think you will get better results by treating twice a day and I think that it is the good part in their technique—not the small dosage.

As Holfelder has stated in one of his papers and to which I referred in my original paper in 1925, he demands to know of any single case that has been cured by indirect radiation—from effects upon other tissues. That is, by a non-destructive dose on the tumor area. And I don't know of a single one.

You can get striking results in the very sensitive types of tumor by relatively small amounts of radiation but that is due to the increased sensitivity of the tumor tissue and not due to your small radiation and of course we all know of the brilliant results that we get in the lympho-sarcomas and the Hodgkin's disease, but we also know how generally we fail ultimately in that very type of case and we fail ultimately because while the tumor is sensitive, we probably fool ourselves and limit our radiation too much to a small area.

I have some Hodgkin's cases that are well now sixteen years, but it is only in those cases in which I covered the entire lymphatic system, so far as I knew it. I think that is the thing you have to do if you are treating that type of disease, because while it is a sensitive type of tumor, it is a rapidly growing tumor and quickly spreads much further than you and I think. We are not quite on our job in those cases. We fool ourselves and the patient gets fooled worse than we do by the rapid temporary results.

The interval after giving two hundred per cent. or whatever we decide to give, our aim should be and the ideal should be, I believe, to give all your treatment within a period of let us say three weeks. My judgment may be wrong and yours may be wrong and we may find that after two or three months we still have some evidence of disease. Then we've got to come back to it or fail. You are taking a certain amount of risk but you take it because there is nothing else to do.

I say I don't know how long these resistance cells in the tumor are going to live, and as long as they live there is a time coming when they can reproduce themselves. We don't know that yet, but I think in all instances we ought to keep our radiation down as much as we can, as much as we dare. As we go along for years, we are going to learn some things about that point and then we can talk more intelligently and we will learn to classify our tumors and take certain types, under certain conditions, that probably will be cured in a week of saturation value, or two or three or four weeks.

In these mouth cases I am talking about, we aim to keep our saturation value up for three to four weeks.

What is the erythema dose? That is a matter of clinical judgment, if we are going to use the term "erythema dose," and up to the present time we haven't

got our R units quite standardized, though we are getting closer to it. For instance, the Germans, generally speaking, are using about 660 or in the neighborhood of 600 R, but their 600 R will probably equal about 800 R of our units or thereabouts. The French are using in the neighborhood of 1,200 to 1,500 R, but their 1,500 R are about equal to the same thing because it takes, as I remember the figures, 2.25 French R to equal one German R, so you can easily see, if you will multiply 600 by 2.25, you are getting up to about the same thing again.

We are still talking in erythema dosage. One man will speak of an erythema dose with a faint redness and another man speaks of an erythema dose when the skin peels off. As long as we have those variable terms, we have to accept a variable answer.

Have I answered all the questions?

I thank you very much for your attention.

A DEFENSE OF ANIMAL EXPERIMENTATION*

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CHICAGO

How to live completely and beautifully is the fundamental problem that confronts every human being. To get the most that is worth while out of life, to make those about us happier and to deserve the right to eternal existence is the perfect ideal toward which we all should strive.

The aim of the scientist is to contribute to this problem and to this ideal by investigating and increasing our knowledge of all natural phenomena. The physicist investigates the seen and unseen physical phenomena, as a result of which he provides us with the engine, harnessed electricity, the x-ray machine, the radio, etc. The chemist investigates the changes in the composition and constitution of material things, as a result of which we are provided with gases, soap, dyes, pure chemicals, steel, rubber and many things used in modern life and industry. The biologist investigates the structure and functions of living things and provides us with the means for increasing the production of food, for preventing disease, and for knowing its cause and cure.

No one would deny the statement that the results of scientific investigation have made it possible for us to live more completely and beautifully. Our progress in science has been due to

the use of the scientific or experimental method. Experiments are devised to analyze obvious phenomena, to test theories and hypotheses relative to the nature of phenomena, to discover the existence of phenomena which cannot be detected by the senses, and to ascertain how these phenomena may be correlated.

The physicist and chemist in their experiments obviously use inanimate matter. The biologist must use as his experimental material either living things or things that have once lived. In order to study structure, the dead bodies of plants and animals are used; but to study function, the living bodies of plants and animals must be used.

A study of function is essential, because the disturbance of function causes the symptoms of disease. In the automobile the function of the spark plug is to provide a spark to explode the gas. If the points of the plug are coated with carbon which prevents the formation of a spark, the engine manifests symptoms—it coughs. If the function of the spark plug and the effect of carbon on its function were not known, the automobile mechanic would not know how to remedy it. The automotive mechanic has devised and knows the function of the spark plug and the effects of substances on it because he has used the method of experimentation.

The biologist, because he is forced to use living material for many of his experiments and because his results apply to the phenomena of life, frequently finds it necessary to defend himself and his science from the attacks of emotional, over-sentimental, uninformed, but conscientious groups in Society.

These attacks too frequently amount to a repudiation of the authority of science, of the moral, ethical and spiritual integrity of scientists as a group and of the validity of the scientific method. Inaccurate thinking is too frequently a proclivity of the large majority of mankind. No one can keep up with all the discoveries of science and few are familiar with the methods and motives of science. Most of us still think with our imaginations. We let the stock market, "high pressure" salesmen, false advertising, and the unscrupulous politicians despoil us of our material wealth; we let the quack and charlatan persuade us with figures of speech. In medicine it is easier to sell the public the impossible, the cure-all, than it is the

*An address before the Optimist Club of Peoria, Illinois, Jan. 29, 1929.

possible and scientifically proven remedy. We too frequently take the line of least resistance and do not take the trouble to investigate the facts. The good business man investigates the facts pertaining to his business, but too frequently uses his imagination and emotion in dealing with important but extraneous matters.

The most unjustified and probably the most detrimental attack made on biologists is the attack made on the use of higher animals for experimental purposes. As long as the biologist uses plants, worms and insects as experimental material he is free from this attack, but there are some so psychopathically sentimental that they would prevent the experimental study of a cockroach. The chief attack, however, is on the biologist that uses the higher animals,—the guinea pig, cat, rabbit, dog, hog and horse for experimental purposes. Such an attack would be justified if the experimental use of these animals were inhumane, unethical and immoral. Frequently bills are introduced into state legislatures, designed to prohibit the use of animals for scientific experiments, and literature of a slanderous and abnormal imaginary character is distributed to excite the public against animal experimentation. Men and women of international renown, university presidents, professors of science, physicians, and representatives of government laboratories and industries, whose progress would be vitally affected if such bills pass, must organize and present simple facts to the legislators in order to overcome misguided and ill-informed sentiment and to protect the public from one of the greatest possible catastrophes.

The preeminent political, moral and scientific leaders of the world, the leading business men, the farmer, the teachers, the preachers and missionaries have been and are convinced of the necessity and efficiency of animal experimentation, as performed in medical research laboratories, in the study of function, and the discovery of the prevention, cause and cure of disease. But in Illinois there persists, as well as in other communities, a small group of serious-minded, unreasoning persons who fanatically attack not only the method, but the motives and the integrity of the group of scientists working in a field of such great value to the welfare of mankind.

Everyone should know the truth, because ani-

mal experimentation is vital to the health of the world.

There are two ways to ascertain the truth, to determine whether animal experimentation is justified. One is to visit the laboratories (they are open to visitors), to observe the methods used and the animals operated on, and then make an analytical study of the results obtained through such experiments. The other is to read or hear of the statements and observations of others who have a true reason to be informed and whose opinions you respect. There are men and women of wide experience who know the truth, who have big hearts, but use their brains as well, who have balanced minds, because balance is necessary for all medical and surgical matters. Ask your doctor, speak to some well known humanitarian, or your minister about this question.

The most common arguments advanced against the method of animal experimentation are two; namely, the method is brutal and nothing of good comes from it. Let us consider these arguments.

Is the method brutal or inhumane? The antivivisectionists allege that experiments are performed without an anesthetic. Their descriptions of what is supposed to occur behind laboratory doors is terrible and preposterous. No one with normal judgment can believe their statements, because if they were true, individuals performing such experiments would not be retained in their positions. More than that, they would be subject to arrest and imprisonment according to the humane laws of the State. Animals are anesthetized before they are operated on, and the vast majority are painlessly killed with ether. If the animal is to recover from the operation, it is performed just as an operation is performed on a human being. The Honorable Charles W. Eliot, President Emeritus of Harvard University, in an address on "The Fruits of Medical Research with the Aid of Anesthesia and Asepticism," said that the discovery of anesthesia was not only to revolutionize surgery and obstetrics, but also to yield unimagined beneficial results, because it would steadily enlarge the range of medical research, and particularly would open to humane and far-seeing investigators the great field of animal experimentation. The presence of pain in many experiments must be avoided in order not to

vitiate the results. It is true that occasionally the animals suffer some serious discomfort, in the course of some experiments. Not more than three per cent. of the animals used suffer any serious discomfort. A group of rules by the American Association for Medical Progress has been adopted and is posted and enforced in all American laboratories of research.

RULES REGARDING ANIMALS

1. Vagrant dogs and cats brought to this laboratory and purchased here shall be held at least as long as at the city pound, and shall be returned to their owners if claimed and identified.

2.—Animals in the laboratory shall receive every consideration for their bodily comfort; they shall be kindly treated, properly fed, and their surroundings kept in the best possible sanitary condition.

3. No operations on animals shall be made except with the sanction of the director of the laboratory, who holds himself responsible for the importance of the problems studied and for the propriety of the procedures used in the solution of these problems.

4. In any operation likely to cause greater discomfort than that attending anesthetization, the animal shall first be rendered incapable of perceiving pain and shall be maintained in that condition until the operation is ended.

Exceptions to this rule will be made by the director alone, and then only when anesthesia would defeat the object of the experiment. In such cases an anesthetic shall be used so far as possible and may be discontinued only so long as is absolutely essential for the necessary observations.

5. At the conclusion of the experiment the animal shall be killed painlessly. Exceptions to this rule will be made only when continuance of the animal's life is necessary to determine the result of the experiment. In that case, the same aseptic precautions shall be observed during the operation, and so far as possible the same care shall be taken to minimize discomforts during the convalescence as in a hospital for human beings.

In this connection the question of man's right to use animals has frequently been raised. In everyday life, the working idea on this question is that mankind has dominion "over every living thing that moveth upon the earth." Animals work for us. Millions of animals are killed daily for food and clothing. Calves are taken from cows, animals are castrated and dehorned without an anesthetic. More pain and suffering is inflicted on animals by hunters and trappers in one day than has been inflicted on animals through experimentation in its entire history. The antivivisectionist as a rule wears woolen

clothes, shoes, possesses furs and feathers which have been obtained through the suffering of animals. The most ardent lover of animals would hesitate to state the number of animals he would sacrifice to save the life of a human baby. President Eliot has said, "The humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals." President Angell of Yale, after investigating the ethics of animal experimentation concludes that "we find no obstacle to the practice of animal experimentation in any intuitive moral convictions, nor in the traditional morality of our race." John Dewey, the noted philosopher, on reviewing the ethics of animal experimentation states: 1. "Scientific men are under definite obligation to experiment upon animals so far as that is the alternative to random and possibly harmful experimentation on human beings, and so far as such experimentation is a means of saving human life and of increasing human vigor and efficiency. 2. The community at large is under definite obligations to see to it that physicians and scientific men are not needlessly hampered in carrying on the inquiries necessary for an adequate performance of their important social office of sustaining human life and vigor." His Eminence, Cardinal O'Connell, states "that the opponents of vivisection have their chief argument on neither reason nor morality, but rather make a very unworthy appeal to morbid sentimentalism relying for its propaganda upon what certainly appears to be deliberate misrepresentation." Rev. John Haynes Holmes in a sermon preached in Community Church, New York, stated, "To accept the charges of cruelty against scientists of this type, which are usually preferred by ignorant employees of the janitor or scrub-woman type, who knows no more about what is going on than I know about what is going on in the laboratory of an Einstein or Steinmetz, this is a thing impossible to me."

The foregoing, I believe, shows that animal experimentation is not only not brutal or inhuman but that it is ethical, moral, and the duty of society to foster and encourage (which, of course, is being done at the present time by putting millions of dollars into endowments for medical research).

The argument that nothing good or worth while has come from animal experimentation is

not a true argument, but is a statement made by one who is religiously or morbidly prejudiced, or by an uninformed person. Ask the life insurance companies what animal experimentation has done to the morbidity, mortality and longevity statistics. Why are such diseases as typhoid fever, diphtheria, smallpox, malaria, child-bed fever, yellow fever, cholera and others, so rare? Ernest Thompson Seton wrote this letter to the President of the Vivisection Investigation League: "I learn now . . . that you utterly condemn the work of the Pasteur Institute, the Rockefeller Institute and allied laboratories. I have to thank the studies of such institutions for the fact that my wife is alive today . . . Kindly accept my resignation from the Vivisection Investigation League, to take effect immediately."

I will mention briefly two discoveries made by animal experimentation.

The physiologist has studied the function of the pancreas in the dog. He found that the removal of this organ resulted in a disease similar to one that occurs in man, which is known as diabetes. He found that if extracts of the pancreas were made and injected, the life of the diabetic dog was saved. This knowledge was applied to man. This discovery made possible the control by physicians of the most dangerous features of this disease, and will prolong the life and alleviate the suffering of 1,000,000 people living in the United States today, who already have diabetes or will develop it.

In the neck there is a gland which controls the metabolism, growth and development of the body. If this gland does not function in the infant or child, the physical and mental growth are stunted. They are mentally dull and unintelligent and in some cases are positively brutish. They develop into dwarfs. In adults, if this gland does not function, the features of the most beautiful woman and most handsome man may become heavy and unintelligent. They become mentally dull and uninteresting. Their lives are practically ruined. The physiologist has found that this condition can be reproduced by removing the gland in animals. He has found that these animals can be cured and the disease prevented by feeding extracts of the thyroid gland. More than that, he has isolated this substance in crystalline form, and has been able to make it in the chemical laboratory. What

has been the result? These two diseases have been abolished from all parts of the earth in which well informed physicians reside. Imagine the untold happiness that would come to you as the mother or father of such a diseased child, when the physician treats him with this substance to observe your unfortunate child blossom out within a short time into a healthy normal human being! I might cite some twenty-five other examples such as blood transfusion, the sewing of blood vessels, the control of specific cerebro-spinal meningitis, the cure of parathyroid tetany, the discovery of ethylene anesthesia, the discovery of adrenaline, pituitrin, the control and in many instances the cure of many of the infectious diseases, such as yellow fever, malaria, rabies, diphtheria, scarlet fever, cholera, typhoid fever, tuberculosis, etc.

Much more is yet to be accomplished. Although animal experimentation has yielded many causes and cures for the acute diseases that were scourges to mankind, we are just beginning to investigate the chronic and degenerative diseases such as hardening of the arteries, kidney disease, heart disease, cancer, etc. The Antivivisectionists criticize animal experimentation because they have not found out the cause and cure of cancer and other diseases. It must be kept in mind that animal experimentation is not an old method. Practically all of the discoveries have been made in the last fifty years and most of them since 1900. We know some of the factors concerned in the cause of cancer such as chronic irritation and hereditary tendency, but time, patience, money and workers are necessary to solve any great and complex problem in nature. The cause, cure and prevention of all diseases cannot be accomplished in a few years or decades. Such a criticism obviously is unjust. Cities and nations are not built in a day. Neither does man become civilized over night.

The lives of the animals themselves have been markedly benefited in the following specific instances: 1. anthrax control, 2. hog cholera control, 3. tuberculosis control, 4. gland control, 5. Texas fever control, 6. blackleg, 7. rinderpest, 8. Malta fever, 9. tetanus, 10. foot and mouth disease, 11. distemper, 12. hydrophobia, and some ten other rare diseases.

The discovery of a vaccine for anthrax in sheep by Pasteur resulted in preventing the

suffering and death of sheep to the extent that, expressed in the terms of money, it amounted in a few years in France to more than five billions of francs, enough to pay off the Prussian War indemnity. Twenty sheep were used in the experiment. The discovery of a serum for hog cholera in which seventeen hogs were sacrificed in the year 1921, led to a saving of \$47,000,000 to the farmers of our country. This amounts to about one million hogs saved. Other specific cases might be cited.

To deny that animal experimentation has accomplished anything, is to deny most of the findings of modern medical science and the efficacy of most of its treatments.

The attack of the antivivisectionist is an hysterical crusade against medical science, and not against the alleged torture of the laboratories. This is shown by the fact that the antivivisectionists try to stop the almost painless work in the laboratories and do nothing about the pain caused animals daily in the process of producing food, furs, etc.

Recently a patient suffering from an incurable malady, for which physiological research has immediate prospects of finding a cure, was informed of the actions of the antivivisectionists, and he replied, "Anyone who aims to prohibit medical research on the pretext of sparing a few stray dogs, should be considered willing to pass sentence of death upon the many sufferers of maladies for which a remedy is not yet known."

The following is the type of letter those of us doing animal experimentation receive from time to time; the following letter was received by me a year ago: "I hope you will suffer the agonies of the damned, just in proportion to what you are making those little animals suffer. I pray that whoever rules the universe will punish you terribly." It is my sincere hope that I will suffer no more distress in the life to come than I have caused my animals to suffer, and the little I will suffer will make me extraordinarily happy when I will think of the inestimable value for the welfare of mankind that will have been derived from such a small sacrifice. Dr. Keen, the Dean of American Surgeons, received the following letter: "Arch-Fiend: I read with horror your article in the *Ladies' Home Journal* on Vivisection. I hope your mother, if she is living, will die in the most

terrible torture, and if she is dead that her soul will never know rest for having given life to such a vile monster as you, is the nightly prayer of a dozen women who indited this." Is antivivisection an hysterical crusade? You can answer.

It is particularly fitting that I speak before this Club on the subject of animal experimentation and that you have a physician for a President, because antivivisection is pessimism and of all optimistic groups the physicians and medical investigators are preeminent. The physician, although he may tell you that you will die tomorrow, will try his utmost to patch up an old, mistreated, disreputable looking body that may be economically fit only for the scrap heap. Humanity, mercy and hope are the attributes of medical science. The ultimate aim of science is to banish disease and physical and mental suffering from the earth. The hope and optimism of the medical research worker can vision the dawn of a new era on the earth when suffering shall be no more.

CHEMICAL OBLITERATION OF VARICOSE VEINS*

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The modern injection treatment of varicose veins dates from Sicard's observation in 1916 that certain solutions on being injected into the veins of the cubital fossa brought about their painless obliteration. Upon investigating the cause of this obliteration he found that it was due to the alkalinity of the solutions. He then decided to apply this property of alkaline solutions to the treatment of varices and was led by his researches to recommend injections of sodium carbonate in concentrated solution. This salt, while an excellent sclerosing agent, was objectionable because of its causticity, the slightest drop outside the vein producing rapid necrosis. It was, therefore, promptly discarded, and in its place sodium salicylate in 20 to 40% strength was adopted and has since been used with much success. Within recent years several other solutions have been advocated, notably hypertonic

*Read before the Douglas Park Branch, Chicago Medical Society, December 18, 1928.

salt solution (20%) (championed by Linser), glucose in 50% strength (advocated by Nobl), calorose, an invert sugar preparation being used at present in Austria, and neutral quinine hydrochloride (13%) with urethane as an analgesic. In this country, the most widely used solutions are sodium salicylate, hypertonic saline, and the various sugar solutions, and it is these that we have been using.

The technic involved is quite simple. It consists merely of an intravenous injection which presents only the difficulty of being performed frequently on tortuous, shifting, and sometimes very thin-walled veins. One must be absolutely certain that the needle is within the lumen of the vein. The patient may be either in the sitting or recumbent posture. It is not necessary to use a tourniquet. The injection should always be carried out slowly, watching carefully for signs of extravasation of the fluid. Should this occur, one injects immediately 5 to 10 c. c. of physiologic sodium chloride solution subcutaneously to dilute the irritant fluid in the tissues. The treatment varies slightly, depending on the sclerosing agent used. If glucose is to be used, one injects 5 to 10 c. c. of a 50% solution two to three times weekly. Glucose, however, is not a very rapid sclerosing agent, but because it is relatively non-toxic and produces such little reaction in the event of the solution getting outside the vein, it is used by many men. Sodium chloride, if selected, is used in 20% strength, 5 to 10 c. c. being injected twice weekly. While it is a good sclerosing solution, it so often produces a severe cramp-like pain below the site of injection lasting for several minutes, that patients frequently refuse to continue the treatment. Our own preference has been for sodium salicylate, in 20% strength, injecting 5 c. c. at the first sitting, and 10-15 c. c. at subsequent sittings. One injection often suffices to obliterate 5 to 10 cm. of the vein. Some patients state that they experience a momentary burning sensation; most patients, however, are entirely free of any subjective sensations. On one occasion, slight dizziness was complained of shortly after an injection of 15 c.c. (3 grams of sodium salicylate), which lasted for about twenty minutes. It did not recur with subsequent injections. If the 20% sodium salicylate does not produce the proper reaction—this occurs rather infrequently, the same solution in 30% strength may be used.

Upon concluding the injection, it is best to bandage the limb with a cotton elastic bandage, which may be left on for 48 hours. This pressure causes a collapse of the vein at the site of injection and often the walls become adherent so that the vein does not refill. The number of injections must be decided entirely by the case involved—usually one or two suffice for the smaller veins, three to six for the larger ones.

What are the anatomic alterations produced by these solutions? Their effects become manifest in about 48 hours. These sclerosing fluids produce an irritation of the endothelium followed by the formation of a very adherent clot. This is then followed by gradual sclerosis and finally atrophy of the entire vessel. All coats of the vein take part in the reaction. Jentzer and Askanazy mixed collargol with solution of sodium salicylate and injected it into a vein. Several hours after the injection the collargol had penetrated into all the coats of the vein.

The French School has been pleased to call the process just described "venitis," which seems to differ somewhat from the infectious irritation of the vein called "phlebitis." The former is localized, is associated with the formation of a very adherent clot, gives rise neither to pain or edema of the limb, and leaves an atrophied cord. In the latter, there is often extension from the superficial network to the deep venous system causing edema of the limb, the clot is often loose, pain is nearly always present and atrophy does not occur. Phlebitis may give rise to embolism, venitis practically never does.

To ascertain the distribution of the injected fluid in the venous system of the extremity, Jentzer of Geneva injected 20% strontium bromide solution and by radiographic studies showed that in varicose veins the injected liquid follows a course opposite to the usual direction of the blood flow. This, in his opinion explains the rarity of embolism. Sicard, Gaugier and Forestier injected iodized oil into varicose veins under the fluoroscope (a dangerous procedure, not to be commended), and found that the blood flow, if not reversed, was at least much slower, and that the liquid injected into the superficial venous system showed little tendency to reach the deep network if the injection was made on a recumbent patient. If, however, the limb was moved vigorously, the opaque liquid was seen to flow into the deep veins. The practical inference

from this is that the irritant solution should be injected while the limb is at rest and the patient should remain quiet and relaxed for a short time after the injection in order to limit the solution to the surface veins.

There are certain contraindications to injection that must be carefully observed: Old enfeebled individuals should not be treated, nor should those with diabetes, advanced cardiovascular disease, extensive edema of the extremities, or recent thrombo-phlebitis be injected. It is also safer to exclude pregnant women.

What are the untoward results? The cramp occurring at the time of injection, and the possibility of necrosis occurring if the irritant fluid gets into the perivascular tissues have already been mentioned. Sometimes a perivenitis occurs, with pain and slight swelling, which yields readily to hot fomentations. Syncope at the time of injection has also been recorded, and is said to occur in emotional and neurotic persons.

McPheeter and Rice were able to collect only 7 deaths in approximately 53,000 cases, a mortality of 0.0024 per cent. Four of these 7 can be attributed to pulmonary embolism. Of the remaining 3 cases, two died of septicemia, and the third of mercurial poisoning (following the injection of mercuric chloride.) Regard concludes his report with the statement that "the danger of embolism is to be feared no more than in ordinary surgery or in the accidents of daily life.

CONCLUSIONS

Chemical obliteration of varicose veins is recommended because of its simplicity and harmlessness. The results are uniformly satisfactory. The treatment is ambulatory permitting patients to continue their usual daily routine.

180 N. Michigan Avenue.

ACHLORHYDRIA, TYPES, CAUSES AND TREATMENT*

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Studies of the secretion of the gastric juice by physiologists and clinicians have given us all something to think about in interpreting stomach symptoms in our patients. Gastric distress

is perhaps more often referable to extra- than intra-gastric conditions and lesions. Nevertheless as Cornell¹ states "the stomach is a barometer indicating the general condition of well being or cachexia." It is with some phases of the relationship of this state of well being or cachexia to a type of stomach secretion that this paper deals.

Carlson² in his review of gastric secretion in health and disease summarizes most adequately the researches of himself and his associates and others. Much of my interest in some clinical studies in gastric secretion on patients in the Norbury Sanatorium and elsewhere dates from reading this article. Dr. L. C. Taylor's discussion of my paper "Early Neurologic Findings in Primary Anemia"³ at the Springfield meeting of this Society seven years ago, also was stimulating.

Achlorhydria is defined as a condition in which by the use of the fractional test meal, no free HCl is detected in the stomach contents during the digestive or interdigestive period although combined acid and some degree of peptic activity are found. Achylia gastrica as a term has perhaps been used more often for this condition up to recent years. The use of modern methods shows that true achylia gastrica, that is no hydrochloric acid, no pepsin, is quite rare. Prior to the use of the fractional method of analysis and also the use of the smaller Reh-fuss, Ryle or Einhorn tubes one session with the larger stomach tube was about all the physician could get his patient to stand. Now, however, thanks to the tube of small caliber and with the small olive tip even highly nervous individuals can wear the tube for some time. If doubt arises as to whether the tube is in the antrum of the stomach, if samples of secretion from different parts of the stomach are desired it is usually not difficult to fluoroscope the patient or to move the tube around under fluoroscopic control.

The studies described in this paper have all been carried out with the Reh-fuss tube and the Ewald meal. The limitations of the method of analysis and the interpretations of curves as pointed out by Crohn and Reiss⁴, Gorham⁵, and others and more recently by Bloomfield and Keefer⁶ are recognized and wherever possible taken into consideration. The factors of dilu-

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tion of secretion by the meal itself, by swallowed saliva, and by regurgitation of duodenal contents; of buffer action of materials in the meal, of rate of emptying time, of variation in secretion in different portions of the stomach certainly preclude any attempt at strict interpretation of a so-called type curve by this method. It would seem, however, that these factors would apply less to cases presenting achlorhydria than to those in which a possible hypersecretion or hyperacidity is being sought.

The procedure more recently described by Bloomfield and Keefer of introducing 50 cc. of 7 per cent alcohol, withdrawing it, returning all save 10 cc. and repeating this at ten minute intervals until the stomach is empty is free from some of the objections mentioned above. This method is now being used on some of the cases previously studied by the Ewald meal though no adequate comparative data are yet available.

Clinically one usually thinks of achlorhydria as associated with pernicious anemia or gastric carcinoma. There are many other situations in which no free hydrochloric acid is present. Bennet and Ryle⁷ for instance noted this condition in 4 per cent of 100 normal medical students. Wright,⁸ examining 250 children from 6 to 15 years of age, found it in 1.6 per cent. Hurst⁹ reported 10.5 per cent in 325 apparently normal persons. As one grows older the gastric glands like other glands show lessened activity. Achlorhydria is reported, therefore, as much more frequent in people over fifty, the figures varying from 30 to 60 per cent. Gastric analyses in older persons must be interpreted in the light of these findings.

An acquired absence of free HCl in contradistinction to these apparently spontaneous findings also exists. Several groupings of the acquired type are given such as 1. alcoholic; 2. following gastrectomy; 3. gastric carcinoma (present in about 50 per cent); 4. gastric carcinoma (present in about 50 per cent); 5. cachexia from carcinoma elsewhere, pellagra, beri beri, many toxic states.

Carlson, in discussing gastric hypoacidity and achylia with extra gastric diseases, mentions and quotes in addition to those above the following: anemia, edema, gall bladder disease, chronic colitis, marked hypothyroidism, some primary

cardiac cases, toxemias of pregnancy, fevers. (Hurst compiled the following table:

TABLE I
ACHLORHYDRIA

	Cases	Number	Per cent
Normal (Bennet and Ryle).....	100	4	4
Carcinoma of stomach.....	25	15	60
Chronic appendicitis	65	22	33
Gall stones	35	17	49
Rheumatoid arthritis	150	59	40
Addison's anemia	36	36	100
Subacute combined degeneration of cord	24	24	100

Hurst also mentions tuberculosis and acne rosacea as conditions where it is frequently found. Cornell adds exophthalmic goiter to the list.

This rather extensive number of clinical disorders where achlorhydria is found shows that there are one or possibly two disturbances where it is probably 100 per cent present, pernicious anemia definitely and subacute combined degeneration of the cord perhaps. Vanderhoof¹⁰ reports 28 additional cases of the latter condition in none of which was free HCl present. Inasmuch as this type of cord lesion is the one usually associated with pernicious anemia the presence of achlorhydria here is not surprising. Faber¹¹ estimated that of all achlorhydric individuals 10 per cent develop pernicious anemia. Among the other 90 per cent some may suffer from comparatively less fatal diseases—exophthalmic goiter, arthritis deformans, appendicitis, cholecystitis—although the majority remain in good health (Cornell).

This brings up the constitutional nature of achlorhydria. (According to Carlson gastric juice with its free hydrochloric acid and specific ferments appears to be confined to the vertebrate animals.) He further states, "The biological significance of this apparently uniform absence of gastric secretion (HCl, pepsins) in the invertebrates and its normal presence in the entire vertebrate phylum is by no means clear. But it would seem that gastric juice is a comparatively late addition to the animal digestive process. It might be worth while to reinvestigate the gastric secretion in the groups supposed to be the nearest relatives of the primitive vertebrates. The late evolution of gastric juice may have some significance in the frequency of chronic achylia in normal persons and the apparent absence of digestive disorders in chronic or temporary achylia

not complicated by motor disturbances in the gut.”

Another factor is the influence of the emotions. Cannon's work showed the effect of the major emotions on the motility of the stomach and intestinal tract. “In normal men and animals all painful stimuli cause some inhibition of the entire phase of gastric secretion. Depressant emotions (fear, anger, anxiety, etc.) also depress both the appetite phase and the local secretion phase.” (Carlson).

We may meet a situation where there is a combination of three factors. First a nervous reaction characterized largely by disturbances in the emotional field. Second, an unstable individual who may not show normal resistance to strain and stress. Third, a toxic state of greater or less degree due to intercurrent illness or progress of the first condition. Analysis of the history often discloses symptoms referable to the gastro-intestinal tract. These may vary from so-called nervous indigestion to major disorders having been found. Study of the patient both at the time of first examination and during the course of observation may reveal further indications of fluctuation in the barometer previously referred to.

Analyses made on one hundred twenty-seven patients in the Norbury Sanatorium for one or the other reasons just mentioned are here reported. It is to be understood that these are not on consecutive admissions but are unselected analyses ordered because some thought of secretory disturbance arose. The results are shown in Table 2.

TABLE 2

	Cases	Per cent
Achlorhydria	42	33
Subacidity	28	22
So-called normal curves	40	32
So-called hyperacidity curves	17	13
	—	—
	127	100

The diagnoses in the cases showing achlorhydria are as follows:

TABLE 3

Auxiety neurosis	15
Pernicious anemia	9
Involuntional melancholia	4
Manic-depressive psychosis, depressed phase.....	3
Carcinoma (Stomach 1, breast 1).....	2
Arteriosclerosis	2
General paralysis of the insane.....	2
Without psychosis (Heart disease 1, chronic appendicitis 1)	2
Epilepsy	1
Brain tumor	1

It was thought of interest to compare the findings in a group of cases seen in office work by the writer. Gastric analyses on sixty-one patients gave the following result:

TABLE 4

	Cases	Per cent
Achlorhydria	15	25
Subacidity	13	20
So-called normal curve	19	32
So-called hyperacidity curve	14	23
	—	—
..	61	100

The diagnoses in the individuals with achlorhydria in this group were:

TABLE 5

Pernicious anemia	5
Gall bladder disease	2
Carcinoma of stomach	2
Post-operative, gastroenterostomy for ulcer.....	2
Post-operative, appendectomy	2
Hyperthyroidism	1
Arthritis deformans	1

Gastric analysis is not made by any manner of means on every patient. It is not indicated in many. Consideration of time, of expense, of the inability of the patient to swallow or retain the tube also enter in. As is well known with a history leading to the suspicion of ulcer or of obstruction at the pylorus or of some intestinal lesion radiography is much more satisfactory. Furthermore, radiography gives information about motility which is often more valuable than knowledge of secretion. Alvarez¹² states that he does not often employ gastric analysis except where he suspects achlorhydria, relying more on the x-ray for study of other conditions.

The symptoms arising from insufficient acid in the stomach are by no means constant. The first thing to do in drawing conclusions about an individual who presents history or physical findings of gastro-intestinal disorder is to rule out organic causes, foremost of which is malignant disease. Pernicious anemia comes next though it is usually more obvious from the general examination. The other conditions that have been mentioned must also be considered although they too are usually more readily indicated in the general survey. Then and not until then should one consider the so-called benign achylas. In other words directive search towards a cause rather than symptomatic handling of the complaints should be the maxim.

Alvarez states that the one symptom that can with confidence be ascribed to achlorhydria is

diarrhea, a characteristic feature of which is its tendency to bother the patient only about breakfast time. Flatulence not corrected by dietary regimen is also often associated with insufficient acid. While it may be called the *post hoc propter hoc* type of reasoning this situation has been frequently observed: An individual complaining of digestive discomfort, not relieved by medication with soda, or drug store digestive tablets or perhaps alkali therapy previously prescribed and in whom malignancy, pernicious anemia or some of the other conditions above mentioned cannot be found even after careful radiologic examination, is relieved upon the administration of dilute hydrochloric acid. The greater frequency of this type of reaction in patients with nervous disorders deserves mention again and is explainable on the basis of physiology. Individuals who have been operated upon for a chronic appendix or chronic gall bladder and still have digestive symptoms have frequently been helped by HCl. Whether the appendix or the gall bladder produced reflex depression of gastric secretion or whether these were constitutional achlorhydrias or subacidities with symptoms ascribed to these organs might be a debatable question. Some cases of "irritable bowel" with colitis have shown subacidity and have responded better to bowel management when HCl was included in the treatment.

The treatment of achlorhydria then is first to look for the cause. Replacement or substitution therapy by giving dilute hydrochloric acid must not be relied upon alone. Symptomatic relief is often thereby secured but until one is sure that especially carcinoma or pernicious anemia can be ruled out it is not fair to the patient or the doctor to stop the search. Even then, knowing as we do the possibility of hitherto undiscovered organic basis developing, it is well to have the patient undergo occasional re-examination. The health audit system with check up at stated intervals is all the more important for these people.

The dosage of dilute hydrochloric acid given in the United States Pharmacopeia is 15 minims (1cc.) well diluted. The tendency now is to give larger doses, 30-60 minims (2-4 cc.). Quite striking results have, however, been seen with smaller doses. Patients in the Sanatorium are

often given frequent feedings of milk and eggs in the attempt to increase their protein intake. The administration of five minims of acid with each feeding, even in those not showing achlorhydria, seems to help in the digestion and assimilation of this concentrated food. The acid should always be given well diluted. This may be in water, orangeade, lemonade, buttermilk or tea. Usually it is given with meals or feedings. Some advise that it be taken forty-five minutes after food. When larger doses are used the teeth should be rinsed or the mixture sucked through a tube.

When the amount of gastric juice (1500-3000 cc.) secreted in a day is considered it is hard to understand how the small amount of acid often given works so satisfactorily. It may be that in some of the conditions herein mentioned amount of secretion is so much lessened that there is enough hydrochloric acid added to raise the concentration and to help peptic activity. However, Bloomfield and Keefer in an experiment designed to simulate secretion of acid in a stomach emptying moderately rapidly found that 60 cc. of $n/10$ HCl or approximately 6 cc. of U.S.P. dilute HCl needed to be added before free HCl appeared where there was no acid before. Kern, Rose and Austin¹³ showed that quite large doses, in one instance 14 cc. or practically half an ounce was necessary to be added to produce the usual test for free hydrochloric acid in a patient with achlorhydria. These authors state "it is conceivable, therefore, that in cases of anacidity gastric physiology may be favorably influenced at times by hydrochloric acid administration without the appearance of free acid, in that the action of the pyloric sphincter may be affected."

Whatever the physiological explanation may be certain conclusions appear to be justified. It is worth while realizing that in some cases of nervous and mental disorders particularly of the functional group the digestive symptoms may be due to insufficient gastric acidity. Certain other cases of so-called nervous indigestion, flatulence, colitis, and other discomforts show when subjected to gastric analysis achlorhydria or subacidity. There may be a constitutional relationship in the insufficient secretion and the other findings. The use of dilute hydrochloric acid in

adequate doses, along with other measures is helpful in treatment of such situations.

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DISCUSSION

Dr. R. C. Brown, Chicago: Mr. Chairman and Members of the Society: I have nothing of fundamental importance to add to Dr. Norbury's excellent presentation. There are however, one or two points that I think are worth while emphasizing. Before making them, I'd like to put in a plea for the old-fashioned methods of examination. Not many busy physicians find it possible to carry out fractional analyses in the course of their routine office work.

I do not think that we ought to produce the impression generally that means of securing information regarding our patients are necessarily difficult or abstruse means that are beyond the reach of the average busy man or create the impression that it is necessary to send patients to laboratories to get results that we ought to be getting in our offices.

Not that Dr. Norbury created such an impression! Not at all! This is no criticism of his viewpoint.

I believe that a very accurate knowledge of the working function of the stomach can be gained by the use of the old-fashioned Ewald test breakfast, combined if necessary with aspirating the stomach at the height of digestion, two and a half or three hours after an ordinary meal, provided that not only is an acid determination made but that the ferments also are determined. That is a simple thing to do with an ordinary milk-curdling test for the determination of rennin. Pepsin and rennin are not disassociated; if one is present, the other will be present.

We should lay a great deal of stress upon the presence or absence of the ferments in the absence of hydrochloric acid because it influences the prognosis. If the ferments are absent in the absence of hydrochloric acid, an achylia exists. If the ferments are retained, there is a secretory function going on in the gastric glands and the prognosis is wholly different.

I have in the Presbyterian Hospital at this time a woman whom I last saw ten years ago. At that time

she had an achlorhydria but her ferments were retained. Today she is ten years older, she is fifty-five; she has a perfectly normal gastric juice. That would not be true today if ten years ago the stomach analysis has shown absence of ferments as well as the absence of hydrochloric acid.

It is rather remarkable that the past three decades of clinical observation and research have thrown so little additional light on this whole subject. The writers of a generation ago were perfectly familiar with the intimate relationship between achylia and pernicious anemia. They knew quite well that the absence, the falling out of the gastric digestive function, was compatible with a good state of nutrition, that it did not necessarily lead to any impairment of the general health.

Nothnagel was, I think, if anything more familiar and laid more stress upon the influence of achylia in the etiology of chronic diarrhea than anybody is doing today.

The only notable contribution to our knowledge that has been made on this subject has been the relatively recent observation regarding the powerful influence of histamin in stimulating hydrochloric acid secretion. It has been shown that in a large, possibly a very large per cent—nobody knows quite yet—of the cases that have been clinically classified as achylia gastrica, the gastric tubules are in reality capable of secreting hydrochloric acid under the influence of the hypodermic administration of histamin.

If the Chairman will give me a few minutes extra, I should like to say a word about the therapeutic effect of hydrochloric acid. That is, the mechanism of this effect.

For many years I was under the influence of Dr. Sippy's belief that it was useless to administer hydrochloric acid in cases of achlorhydria or achylia, his idea being that with a normal output of about 1500 c.c. of gastric juice in twenty-four hours, the relatively small amounts possible to administer by mouth were wholly inadequate to influence digestion.

A great flood of light was borne in on me, however, by my observation of one of the members of the faculty of the University of Chicago who, to my certain knowledge, has had an achylia, a total achylia, for fifteen years. During most of these fifteen years he has been emaciated to a degree, physically weak; has had a continuous uncontrollable low-grade diarrhea. Stool examination showed that the basis of the emaciation and physical weakness was the presence in the stools of an enormous content of fat.

In 1919 or 1920, I had an opportunity to see his gastric mucous membrane. He was gastro-enterostomized at that time on account of a very interesting non-malignant stenosis of the antrum portion of the stomach which was producing an extreme degree of obstruction, vomiting, etc. But that's another story.

The mucous membrane lining of his stomach was as thin and smooth as parchment. The diarrhea during all these years continued to be wholly uninfluenced by any

of the ordinary methods of treatment. The commercial pancreatic extracts were of no avail.

Three years ago I put him on hydrochloric acid in relatively large amounts. The fat began disappearing from the stools, his diarrhea stopped; he has since that time steadily gained in weight and is now in a normal state of nutrition and health.

The point that I wish to make particularly at this time and in connection with Dr. Norbury's paper is that when one administers hydrochloric acid, the effect produced is not to aid the gastric digestion, but to influence favorably the intestinal digestion.

Pavloc found that by smearing the mucosa of the duodenum with acid an outpouring of pancreatic juice resulted. He looked upon that as a reflex. It remained for the distinguished physiologists. Bayliss and Starling, to show the presence in the mucous membrane of the duodenum of a substance known as pro-secretin a chemical substance which is isolatable and whose chemical reactions are known. In contact with hydrochloric acid pro-secretin becomes secretin, the chief stimulant of the secretion of pancreatic juice. Since the pancreatic juice contains steapsin, a fat-splitting enzyme, it is not difficult to understand the striking effect of HCl therapy upon the digestion of fats in the case cited.

If time permitted I should like to mention some cases of combined cord degeneration producing marked spastic paralysis with achylia, and not pernicious anemia, there being perfectly normal blood findings. I should particularly like to talk about some of the chronic diarrheas based upon achylia.

Of most importance, probably, is the relationship of achylia to pernicious anemia and it is difficult to evaluate the influence hydrochloric acid administration may be having in the results now being obtained by the new therapy for pernicious anemia.

However, the combination of liver and the leafy vegetables, citrus fruits and hydrochloric acid is yielding results in pernicious anemia that are remarkable and the cases are showing no tendency whatever to relapse. Day before yesterday I saw the first case that I had placed on this therapy over two years ago. She was bed-ridden, had marked edema, extremely low blood findings and a persistent diarrhea.

Within three months the woman was clinically almost well and now after two years the blood findings continue to show a practically normal blood picture.

Thank you.

Dr. F. G. Norbury, Jacksonville, Ill.: It seems like carrying coals to Newcastle to come to Chicago and talk about some phases of gastric secretion with a discussion such as Dr. Brown has just given us and what we know of the work of Carlson and Sippy. I certainly wish to express to him my appreciation for the discussion.

DIFFICULTIES IN DIAGNOSIS OF TUBERCULOSIS OF THE EYE*

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It is often difficult to recognize tuberculosis when it occurs in the eye. Its symptoms frequently simulate other diseases and are not always characteristic. If this were not the case, the statistics of European and American Clinics would not vary so greatly. In this country only a small percentage of the cases of chronic anterior uveitis are classified as tuberculous, while in Austria and Germany at least fifty per cent. are said to be due to it. One who has visited the hospitals of Vienna could not help being impressed with the large number of cases that are diagnosed as tuberculosis.

Ophthalmologists on this side of the Atlantic are inclined to group only those cases that have definite tubercle formation as being due to tuberculosis and hesitate to place diffuse chronic anterior uveitis under that heading. The microscopic examination of enucleated eyes with diffuse anterior uveitis has not helped us in solving the question because the iris and ciliary body may only show the pathological picture of a chronic uveal inflammation. In most cases there is no caseation and tubercle bacilli cannot be demonstrated in the tissues. Epithelioid and giant cells are found in other diseases and in themselves are not characteristic. If it were practical, the transplantation of uveal tissue from an affected eye into the peritoneal cavity or anterior chamber of laboratory animals would solve the problem in the average case. For these reasons it is difficult to diagnose with certainty diffuse tuberculous iritis.

The presence of minute, gray, avascular nodules at the pupillary border in cases of diffuse iritis is said by Koeppe to be characteristic of either tuberculosis, syphilis or sympathetic ophthalmia. He unhesitatingly classifies cases as tuberculous with nodules of this type, when syphilis and sympathetic ophthalmia can be excluded. However I am not so certain that an unqualified diagnosis should be made on this

*Read before the Section on Eye, Ear, Nose and Throat, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

symptom alone. The reason for this opinion is exemplified by the history of the following case:

Miss D., a robust telephone operator, nineteen years of age, consulted me January 26, 1928, for failing vision and the appearance of floating opacities in the right eye. The left was unaffected. The symptoms began three weeks before and had gradually progressed. There had been no pain, photophobia or lachrymation. There was slight circumcorneal injection in the right eye; the iris was slightly muddy, and the pupillary border was studded with very small grayish nodules that were barely visible to the naked eye. With the slit lamp and corneal microscope a few cells and fibrin were seen in the anterior chamber. The

by mouth the eye slowly cleared and three months after the onset of the disease 20/20 vision was obtained with a -1.00 Sph. = $+1.75$ Cly. ax. 103° .

From a clinical standpoint this was a typical case of tuberculosis of the eye. It had all of the classical symptoms, but its etiology could not be proved. The absence of pain, its chronic nature, and mild inflammatory reaction were characteristic of tuberculosis, but the absence of a focal reaction after the use of diagnostic doses of tuberculin made it impossible to classify the case as tuberculosis.

In the past we have been inclined to look



Fig. 1. Tuberculosis of cornea showing invasion from iris. (a) Tubercle in iris. (b) Descemet's membrane. (c) Corneal tubercle. (d) Corneal lamellae.

nodules were similar to those that Koepe mentions. At one time as many as twelve could be counted. There were numerous dust-like opacities and several large white masses in the vitreous. The retinal vessels were congested but no exudates could be found in the retina or choroid. The clinical picture in the eye was typical of tuberculosis. The vision was Right 20/80, Left 20/25 with lenses.

The Wassermann reaction was negative and the tonsils were normal. No evidence of tuberculosis could be found in the chest or other parts of the body. One dead tooth was found by x-ray, but showed no signs of infection at the apex when it was removed. Sympathetic ophthalmia could be excluded because there was no history or evidence of injury in either eye. The right eye was treated locally with atropine and hot applications and diagnostic doses of Old Tuberculin were given subcutaneously at intervals of forty-eight hours. The first dose of $1/10$ mg. and subsequent injections up to 5 mg. did not produce a reaction. The tuberculin did not seem to influence the course of the disease in the least. Theoretically we should have had a distinct focal reaction shortly after injecting the larger doses of tuberculin. With rest of the eye, sodium salicylate and later potassium iodide

Fig. 2. Tubercle on posterior surface of cornea in a case of uveal tuberculosis.

Fig. 3. Tuberculosis of the iris.

upon tuberculin as a reliable diagnostic agent in tuberculosis of the eye and to place much faith in its therapeutic efficiency. It undoubtedly is of great value in many cases but I feel certain that it is not a specific and further research may show that it is of no more value than other forms of non-specific foreign protein. My confidence in tuberculin as a diagnostic agent has been shaken because of its failure to produce a focal reaction in eyes that were enucleated and proven by microscopic examination of sections to be due to tuberculosis. Focal reactions occur in tuberculosis after the injection of other foreign protein. Lowenstein reports a case in which a focal reaction occurred in a tuberculous eye after milk had been injected. Others have observed similar results.

In a study of the reaction of tuberculin and other foreign proteins in the eyes of rabbits that had known tuberculosis of the uveal tract, I found that the majority reacted focally

to large doses of tuberculin when administered subcutaneously. I also found that other proteins produced similar reactions. In one instance a severe reaction with a large hemorrhage into the anterior chamber occurred after the intravenous injection of typhoid vaccine. Further research is in progress to determine whether this phenomenon occurs frequently.

It is often very difficult to classify lesions of the cornea. The pathology of chronic interstitial keratitis is quite similar in a number of conditions and the clinical picture consequently is much the same. Tuberculosis is rarely

not help although the clinical and microscopic pictures were typical of tuberculosis. This form of tuberculosis should have offered little difficulty in making a diagnosis because of the presence of caseated tubercles in the iris and the yellowish avascular nature of the corneal lesion.

The clinical appearance of syphilitic interstitial keratitis, on the other hand, is identical with diffuse tuberculous keratitis and in the absence of a positive Wassermann reaction and other signs of congenital syphilis it may be impossible to make a differential diagnosis.

Scleritis and episcleritis are very frequently

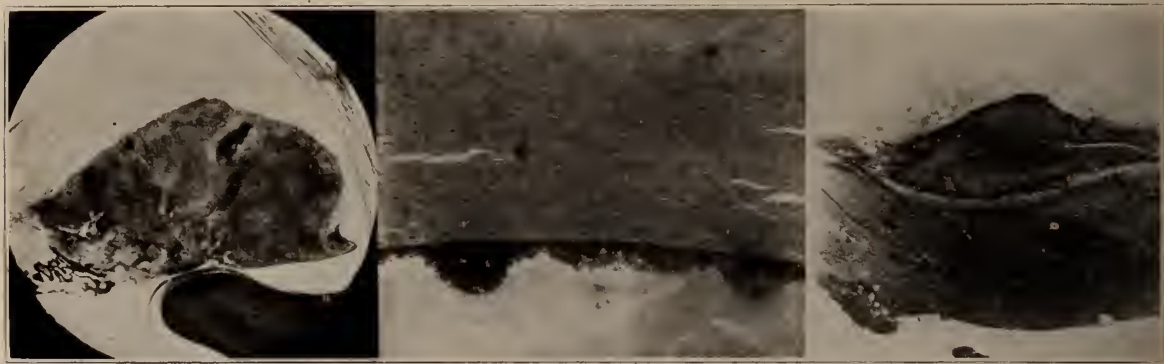


Fig. 4. Tuberculosis of the iris. Eye removed for sarcoma of the iris.

Fig. 5. Mutton fat deposits on posterior surface of

the cornea in tuberculosis of the ciliary body.

Fig. 6. Tubercle of choroid and retina. Case diagnosed intraocular tumor. Diffuse.

primary in the cornea. When it occurs it is usually associated with tuberculosis of the uveal tract and the sclera is also often invaded. When yellowish caseated areas are present at the base of the iris and the cornea becomes involved tuberculosis should be suspected. In iris tubercles the nodule often touches the cornea and extends into it. Fig. 3 illustrates this. In the case from which the section was made the disease began in the ciliary body and was carried by the aqueous into the anterior chamber. The pupillary border and base of the iris became invaded and from each place the process extended into the cornea. The condition had been diagnosed sarcoma of the iris and the eye was enucleated and sent for microscopic examination. Later the patient was referred to me for treatment of the other eye. A focal reaction did not occur after diagnostic doses of Old Tuberculin were administered. The eye was not influenced in the least by any form of treatment and after nine months the vision was lost and the globe shrunken. In this case tuberculin did

due to tuberculosis. Verhoeff said: "Now if there is any one thing of which I am sure, it is that ordinary scleritis and keratitis, that is to say, anterior nodular scleritis, are always due to tuberculosis." I think that he is right although in my experience I have found three cases in which I have been unable to positively prove the etiology. It is possible that in some of the obscure cases syphilis and focal infection may be the case.

Because of the position of the ciliary body inflammatory foci in it cannot be seen, and the cause of inflammation in this structure is always obscure. Disease in this portion of the eye if protracted and relatively free from pain and accompanied with periods of improvement and remission, should suggest tuberculosis. Large whitish mutton fat deposits on the posterior surface of the cornea are also characteristic (Fig. 5) and often nodules occur in the iris. The cornea and sclera may become invaded also. I am sure that many cases of

tuberculosis of the ciliary body are overlooked. I have seen it several times in microscopic sections of eyes in which its presence had not been suspected before the enucleation. This conforms with the experience of Fleischer who in 1914 found evidence of tuberculosis in the anterior segment of the eye in a case with tuberculosis of the retinal vessels. His view was that tuberculosis of the retinal vessels was preceded by tuberculosis of the ciliary body. Verhoeff's view in that the origin of chronic ocular tuberculosis in general is due to the passage of the tubercle bacillus from the ciliary body into

atrophy of the retina and choroid. All of us are familiar with this fundus picture.

The solitary tubercle frequently is confused with tumor or gumma. As a matter of fact it may be impossible to make a differential diagnosis in the early stage. A striking example of this is illustrated by the following history.

Mrs. H., aged 37 years, was seen on April 20, 1921, complaining of blurred vision in the right eye. She gave the history of a suspicious small carcinoma of the right breast which had been successfully removed about one year before. In addition to this she had suffered from pulmonary tuberculosis for which she went to Colorado in 1919. Just prior to the time that



Fig. 7. Tuberculosis of retinal vessels. Early appearance.

Fig. 8. Tuberculosis of retinal vessels; late change showing perivascular exudate and at junction of veins

and constriction of walls. Note the hemorrhages into the retina.

Fig. 9. Terminal stage of tuberculosis of the retinal vessels—retinitis proliferans and localized detachment of the retina.

the aqueous and from there it is carried to other parts of the eye when it lodges and produces secondary foci.

Miliary tuberculosis of the choroid is easily diagnosed. The isolated yellowish nodules are characteristic and the history of generalized or meningeal tuberculosis give confirmatory evidence. It is seen so frequently as a terminal stage that few cases survive for a long period of time. The etiology of disseminated choroiditis or chorio retinitis, on the other hand, is extremely difficult to determine. The tuberculous form is usually more extensive than other types and there is a tendency for one lesion to blend imperceptibly with another. The edges of the infiltration are irregular, the retina elevated and edematous. The illustration of diffuse retinal tuberculosis in Adam's atlas is a good example of the ophthalmoscopic appearance of the active stage of the disease. The end result is widespread pigmentation and

the scotoma was first noticed, the tuberculosis became active again. There was no evidence of recurrence of the tumor of the breast or involvement of the adjacent lymph glands. The tension of the right eye was 22 mm. "Gradle" at the time of the first examination; an absolute scotoma was present in the lower nasal field; and an irregular slightly elevated area that measured about $2\frac{1}{2}$ disc diameters across was seen in the upper temporal quadrant of the fundus. The left eye was negative.

Because of the renewed activity of the tuberculosis in the lung and the time that had elapsed since the breast had been amputated, it was concluded that the fundus lesion was tuberculous in character. Old Tuberculin was given and what was interpreted as a focal reaction occurred. B. E. Tuberculin was then given cautiously at regular intervals. However, the retina ultimately detached just below the lesion. Three months after the onset of the disturbance in the right eye the vision began to fail in the left, and a small oval area that resembled a choroidal tubercle was seen near the macula of the left eye. This gradually increased in size and underwent changes that were exactly similar to those that had taken place in the fellow eye. Both retinæ became completely detached

and the patient was blind for several weeks before her death. During the course of the eye disease the patient was under the care of an exceptionally competent internist who supervised the administration of the tuberculin. The patient died five months after the onset of the eye trouble from what appeared to be a tuberculoma of the brain. Permission for an autopsy was flatly refused and we were never able to determine with certainty whether the disease in the eye and brain was due to tuberculosis or to metastatic carcinoma. There was fever, and tubercle bacilli were found in the sputum just prior to death. We attached much importance to the focal reaction following the administration of tuberculin and felt that the process in the eye was due to tuberculosis. However, this might have been a coincidence and not a true reaction. The widespread detachment of the retina favored tumor because in tuberculosis there is usually enough inflammatory reaction at the edge of the lesion to firmly bind the retina to the choroid and to prevent its separation.

Another example of a difficult case is the following: Mrs. P., aged 30 years, complained of having had poorer vision in the right than in the left eye for over ten years. The early history was vague. Five days before the examination the central vision of the right eye became poorer and has steadily grown worse. She had been under the care of an eye, ear, nose and throat specialist who opened and drained the ethmoidal sinuses. The tonsils had been removed, but no improvement occurred. When she was first seen the vision of the right eye was 15/200 eccentric, the left 20/20. Her general health had always been good, but she gave the history of having nursed tuberculous patients in the past. The eye had not been inflamed. There was a slight haziness of the vitreous and a small yellowish, slightly elevated area present in the macula. Nothing abnormal was found in the anterior segment of the eye when it was examined with the slit lamp and corneal microscope. The Wassermann reaction was negative and no evidence of focal infection could be found in the body. There was slight dullness to percussion over the apices of both lungs but no evidence of activity was detected in the chest. The temperature in the afternoon was normal. A tentative diagnosis of either tuberculosis or tumor of the choroid was made and a course of diagnostic injections of tuberculin was advised. At this stage of the examination I left for a trip to Europe and did not see the patient until four months later at which time a cataract was present and the eye was blind and painful. She stated that shortly after I had left the eye became red and the condition diagnosed glaucoma. She was using eserin when I saw her. Because of the pain in the eye and the history of glaucoma I felt convinced that the symptoms were due to an intraocular tumor and urged enucleation even though the tension was 18 Mg. of Hg. Schiötz at the time. She was greatly relieved and gained ten pounds in the three weeks after the eye had been removed. Microscopic examination revealed the presence of a solitary

tubercle that involved the choroid and retina in the macular region. The center of the mass was caseated and several giant cells were present. Fig. 6. The ophthalmoscopic appearance and the history did not give us sufficient evidence to make a diagnosis in the two cases that have just been described.

Lesions that heal and become definite scars are probably tuberculous in character. Mrs. S., aged 36 years, is an example of this type. She consulted me November 15, 1927. Her symptoms were similar to the early symptoms of the last case that has just been reported. When she was first seen a yellowish tubercle was present in the macula. After the administration of .008 mg. of O. T. the lesion became more hazy and swollen and a minute hemorrhage occurred near its lower nasal border. Under hygienic measures and the administration of small doses of tuberculin "B. E." the activity in the eye gradually subsided and she gained twenty pounds in two months. When she was last seen a choroidal scar with pigmented borders was present and the disease had evidently run its course. There was no evidence or history of malignancy; the Wassermann reaction was negative and no focus of infection was present. The disease was classified as tuberculosis.

It is exceedingly difficult to diagnose retinal tuberculosis. It occurs in several forms and may closely simulate other types of retinitis. It frequently is associated with disease in the choroid. In a large series of experiments on rabbits it only occurred independently of the choroid in two cases.

Retinal tuberculosis is seen most frequently in one or two forms, i. e., retinal perivasculitis or isolated tubercles in the retina itself. Occasionally mixed forms occur.

The isolated spots that involve the macula may approach the appearance of the spots of renal retinitis. They are usually less brilliant and their edges fade gradually into the surrounding fundus. Jackson¹ and Knapp² have published splendid plates and descriptions of this type of case. They may be difficult to differentiate from the exudates of renal retinitis, diabetes and vascular sclerosis.

Retinal periphlebitis is easily diagnosed and in most cases is due to tuberculosis. When associated with perivascular exudates at the junction of venous tributaries it is, in my opinion, a tuberculous process. It begins in the periphery of the fundus and gradually travels backward toward the optic nerve. Hemorrhages occur early into the retina and vitreous and frequently obscure the true nature of the fundus disease. In recurrent hemorrhages into the

retina and vitreous tuberculosis is often the cause. However, I feel convinced that it is not always the etiology. Several years ago I analyzed a series of cases and reviewed the literature on this subject and came to the following conclusions:

1. Recurrent hemorrhages into retina and vitreous in young persons is probably not a specific disease.

2. Tuberculosis of the retinal vessels, especially the veins, is one of the common etiologic factors.

(a) To prove that the cause is tuberculosis, a focal reaction should be obtained.

(b) When due to tuberculosis, improvement follows the administration of tuberculin and hygienic treatment.

3. Syphilis is an occasional cause.

4. Focal infection is a possible cause.

5. Hemophilia is not a cause, but might be a contributing factor.

6. The hemorrhages are the result of a localized pathologic weakening of the blood vessels, and increased blood pressure or exercise are only exciting causes.

7. The veins are usually attacked.

8. In some cases there is involvement of the retina early in the disease.

9. In most cases the earlier changes occur in the periphery of the eye, and if patients were examined in the early stages of the disease, we would learn more about the pathology.

10. Retinitis proliferans occurs in most cases.

11. I believe the disease is primarily in the retina, and that the partial or complete detachment of the retina is due to traction from scar tissue and not to subretinal hemorrhages from the choroidal vessels, as has been suggested.

Jackson³ states: "The clinical picture that it seems important to fix in relation to retinal tuberculosis includes these features: vitreous opacities, recurrent hemorrhages, enlargement of the retinal veins, local lesions described (small white spots in the macula) associated with enlargement of the retinal veins, white spots in the macula in some cases, optic neuritis and retinitis proliferans as a terminal condition."

Tuberculosis of the optic nerve is so rare and should offer no difficulty in diagnosis.

When the disease occurs in the conjunctiva its diagnosis is usually easy. Microscopic exam-

ination of the tissue and animal inoculations can be made without difficulty and there should be no reason for confusing it with other processes.

The lacrymal sac is a frequent source of tuberculosis. Stock found it in a large percentage of his cases. It usually is not diagnosed until after the sac is extirpated and examined under the microscope.

Periosteitis of the orbit may be due to a number of causes and it is usually difficult to diagnose. Biopsy and animal inoculations of the diseased tissues should be resorted to in all cases.

From a rather wide experience in ocular tuberculosis I have come to the following conclusions:

1. All cases of tuberculosis of the eye present difficulties in diagnosis.

2. Tuberculosis of the eye may closely simulate other chronic eye diseases and in some cases the only positive means of determining the cause is microscopic examination or animal inoculation.

3. Tuberculin as a diagnostic agent is unreliable. It may aid in some cases.

4. Focal reactions in tuberculous lesions are not specific but may occur after the injection of foreign proteins other than tuberculin.

5. A diagnosis must usually be based on the history, clinical appearance, and course of the disease. If a focal reaction occurs after the injection of diagnostic doses of tuberculin it is merely additional evidence.

217 Imperial Building.

CASE ILLUSTRATING SUCCESSFUL CONTROL OF DIABETES INSIPIDUS

by

SYSTEMATIC INTRA-NASAL USE OF PITUITRIN

LEIGH EWING SCHWARZ, M.D.

CHICAGO

A description of the following case of diabetes insipidus successfully treated by the application of pituitrin to the nasal mucosa will, I believe, be of interest, as a scrutiny of the literature does not show a similar instance of the systematic use of pituitrin for the control of polyuria by nasal application.

Patient 47 years of age, widow, in good health

at the time of beginning of the polyuria in April, 1922. Medical history prior to onset furnishes nothing of significance—x-ray of cranium negative.

The polyuria developed rapidly, was accompanied by decided nervous reaction, and by a marked diminution in menstruation leading quickly to cessation, but not by any other disturbance. At this stage the quantity of urine voided in twenty-four hours ranged from twelve to fourteen litres, and the maximum excretion fifteen litres, and the patient resorted to the administration of one ampoule of Parke Davis & Company's obstetrical Pituitrin hypodermically every other day. This dosage proved insufficient as the effect was apparent for a period slightly less than twenty-four hours, and necessitated a change to one ampoule daily, subject however to frequent unavoidable interruptions and irregularities in the time of the administration. For approximately twenty-four hours following each injection the amount of urine voided was reduced to six or seven litres—i. e. one-half the former daily average without treatment, but the patient began to show the effect of broken rest at night.

Upon resorting to nasal application, Parke Davis & Company's oral Pituitrin was employed in sterile salt solution, varying from one part in five to full strength, but the weaker solution was soon discarded in favor of the full strength.

The patient under ordinary circumstances is comfortable with two applications daily, one at eight A. M. and one at eight P. M., but three are better, and are made at eight A. M., three P. M. and upon retiring. At the present time not more than half a glass of water is taken during the night. Unremitting use of the preparation has not resulted in establishing toleration, as far as can be observed, since the amount of pituitrin required, and the effect obtained bear the same relation now as at the beginning of the treatment nearly six years ago.

Technique employed is as follows: Moisten with ten or twelve drops of pituitrin a flat piece of cotton the size and double the thickness of a nickel. Take up the same with a nasal forceps or similar applicator and carry up and slightly backward to the anterior surface of either one of the middle turbinate bodies, pressing the cotton gently and firmly against the turbinate and adjacent mucosa. Withdraw the applicator taking

the precaution not to dislodge the moistened cotton and allow to remain until the time decided upon for the next application when the procedure is repeated on the opposite side and in the same manner.

Applied in this way, in the location described, there is no discomfort and no interference with nasal breathing and the patient experiences only a slight stinging sensation and on rare occasions a slight irritation similar to that of a mild coryza which always has disappeared following temporary removal of the cotton for an hour or two.

Applications have alternated and have never been made on both sides simultaneously.

Removal of the cotton is effected by the careful use of a nasal forceps, taking precaution not to injure the mucous membrane and the necessary skill on the part of the patient should be only a question of practice.

To the Editor:

Although Oral Pituitrin was discontinued by Parke Davis & Company last year by request of the "Council" Pharmacy A. M. A. its use was continued in the above case because of its convenient form and quantity in the original packages. In reduced dosages the "Surgical" could have been employed or the "Obstetrical" could have been used in the same dosage as the Oral.

THE MENACE OF A SO-CALLED INDUSTRIAL VISUAL SURVEY; ITS REPLACEMENT BY A METHOD UNDER THE SUPERVISION OF AN OPHTHALMOLOGIST*

C. F. YERGER, M.D.,

CHICAGO

That I have taken advantage of a time-worn prerogative in vogue in our medical societies of having the Chairman of a Section read a paper known as the "Chairman's Address" is due to the timely suggestion of our confrere, Dr. G. Henry Mundt, President of the Illinois State Medical Society, who, in his many contacts throughout the state, in the interest of things medical, has been the recipient of various complaints concerning a vicious method of making a so-called survey of vision in industry and

*Chairman's address before Section on Eye, Ear, Nose and Throat, Seventy-eighth Annual Meeting, Illinois State Medical Society, Chicago, May 8, 1928.

which he thought of sufficient importance to demand our urgent and immediate attention, investigation and consideration. He, therefore, suggested that I as Chairman of the Section of Eye, Ear, Nose and Throat make this subject the Chairman's Address, but as the task is so great and of such importance that, although I fear he has made the selection of myself unwisely, I nevertheless accepted the assignment, when he promised, to lighten the labor of this investigation, by arranging for the assistance of the Educational Committee of the Illinois State Medical Society and in acknowledgement of this aid, I am especially grateful to Miss Jean McArthur, the Secretary, for her generous and efficient co-operation.

The type of visual survey that is a distinct menace because it implies that which it is not, namely, a complete scientific examination of the eyes, whereas it is just the opposite, as it is but a superficial and perfunctory attempt at making a visual acuity test and a manifest refraction.

The usual method of one of these so-called visual surveys is as follows; a firm of wholesale-retail opticians or optometrists obtains permission to make a test of vision and refraction at the plant or place of business of all employees without cost to employer or employee and in the event that the employee needs glasses they shall be supplied at a flat rate to be paid by the employee and in case he defaults, the employer may withhold the amount charged for the glasses from the salary of the employee.

Obviously, the concerns permitting this have been misinformed and misled into believing that such a refraction made at the plant or place of business can be satisfactory.

Following in the wake of one of the so-called visual surveys, it is the common experience of ophthalmologists to encounter many dissatisfied employees who are unable to wear the glasses prescribed for them.

In a complaint made to the State Department of Health of Ohio,¹ against one of these so-called visual surveys, it was found that the optometrists doing this work took but from three to five minutes for each examination, that many of the employees receiving their glasses could not wear them and that this was working a financial hardship upon them.

Due to the activities of a certain type of wholesale-retail opticians and itinerant optometrists, the incidence of this sort of visual survey is on the increase, especially in and about Chicago and in other industrial centers throughout the state and nation.

The remedy for this menace is its repeated exposure, the education of the public and the medical profession and especially those responsible for its spread into industrial and commercial establishments, as the executive officials of these concerns and in some cases, I am sorry to state, to the complacent indifference of the industrial physician in not opposing such an attempt when it is first proposed.

The committee appointed by the Chicago Ophthalmological Society to investigate the subject of industrial visual surveys, in its report, March, 1927, in part recommended that the Chicago Ophthalmological Society secure the co-operation of the Chicago Society of Industrial Medicine and Surgery, the Chicago Medical Society and the Illinois State Medical Society in diverting this work from the non-medical refractionist to the ophthalmologist.

At a recent meeting of the Chicago Ophthalmological Society, it was stated that 50% of the general practitioners do not know the difference between an optometrist and an ophthalmologist or oculist. Be that as it may, from my own knowledge, I know of but few instances where the general practitioner preferred to refer his cases for refraction to an optometrist rather than to an ophthalmologist.

The ophthalmologist being a physician is not limited by law to any method of refraction as is the case with the optometrist who cannot use, recommend or prescribe drugs to aid him in his refraction work. The ophthalmologist appreciates the value of a cycloplegic drug and uses it whenever needed in the refraction of his patients. The advantage, in these cases, is that the cycloplegic drug produces a temporary paralysis of the ciliary muscle which places the power of accommodation in abeyance so that the latent refraction may be accurately measured. It is just in this class of cases that the optometrist fails and falls into the error of prescribing incorrect glasses. One is not able without the use of a cycloplegic drug to sufficiently inhibit the ac-

tion of the ciliary muscle by any method which will prevent the patient accommodating.

Moreover, an error of refraction is not the only cause of loss of visual acuity. There are many other causes that are beyond the ability of the non-medical refractionist to recognize, as faulty development of the eye, and acquired pathological changes of the eye due to systemic and local diseases. Indeed, the first intimation of the presence of a grave systemic disease is often manifested in the eyes as, syphilis, focal infection, nephritis and diabetes, and in diseases of the nervous system, in tabes, general paresis, multiple sclerosis and brain tumor. Glaucoma is one of the most prolific causes of blindness in persons over 40 years of age. Infinitely more important to the patient than the correction of an error of refraction is the diagnosis in its incipency of the presence of glaucoma because its successful treatment necessitates an early diagnosis and treatment before irreparable damage to the optic nerve has resulted in permanent blindness. On the other hand, if the glaucoma is diagnosed and treated early, the disease is ameliorated or arrested and the patient is able to retain useful vision. It is, indeed, unfortunate for the person who had his eyes tested and glasses prescribed for him by an optometrist when what he actually and urgently needed was general medical or local eye treatment or both for some serious disease and not glasses. The patient is thus led into a state of false security by reason of his confidence in the ability of the optometrist to recognize and correct any condition of the eyes thereby losing valuable time which should have been made use of in instituting early and intensive treatment of his disease and thus prevent irremediable blindness and loss of health.

A complete and scientific examination of the eyes can only be expected of one thoroughly versed in the science of ophthalmology and should include, the testing of the visual acuity, the examination of the eyes for the presence of external eye diseases; the testing of the extra-ocular muscles for the presence of muscular imbalance or squint; the testing of the refraction, with a cycloplegic in all persons up to the age of 40 years when not otherwise contra-indicated and without a cycloplegic in the remainder; the examination of the eyes for the presence of internal eye diseases; the testing of the color vi-

sion; the perimetric, campimetric and tonometric examinations. With such a comprehensive examination, it is not to be wondered at, that the first intimation of the presence of eye pathology indicative of serious local or constitutional disease is not infrequently discovered during the course of a refraction by an ophthalmologist. Such an eye examination should lessen decidedly the frequency of industrial accidents and increase the efficiency of the worker, thereby increasing production and reducing wastage in industry. Also, it is of material advantage to the industrial accident insurance company in the medico-legal cases of eye injuries to have recourse to the ophthalmological record of the case.

No arbitrary standard of visual acuity can be made in industry, generally speaking, because the visual acuity requirements must necessarily differ in the various industries and occupations. From the standpoint of the visual acuity tests, some railroads group their employees into different classes, depending upon the hazard and character of the work and whether the tests are made for entrance into the service, promotion or periodic examination. In the operating service, they require a normal visual acuity test for both distant and near vision, with or without glasses. On the other hand, one of the largest industries in this country accepts applicants for employment, so far as the visual acuity is concerned, if the vision is 20/40 or better in one eye and 20/50 in the other eye, with or without glasses, which vision is worse than that classified as moderately defective, viz., 1. Normal vision, 20/20 or better in both eyes, 2. Moderately defective vision, 20/40 or 20/30 in one eye and 20/40 or better in the other eye, 3. Markedly defective vision, 20/50 or less in one or both eyes.² The consulting ophthalmologist is the best judge of the visual requirements in any specific case and it should be left entirely to him.

The following is a tentative working plan for an industrial visual survey under the supervision of an ophthalmologist and may be modified to suit the necessities of the case.

A general screening test is made at the plant or place of business. The visual acuity of each employee for distance, without glasses is obtained by means of the Snellen test-type chart. This can be done by a nurse or employee especially trained for this test or by the industrial physician. All employees having normal vision, i. e., 20/20 or better in both eyes, are passed. All employees with sub-

normal vision, i. e., 20/30 in one eye and 20/30 or better in the other eye to markedly defective vision should be referred to an ophthalmologist. The visual acuity of each employee over 40 years must be tested for presbyopia, as the vision may be normal for distance but defective for near work. In the near vision test, the employee should be able to read the Snellen 0.5 at 20 inches and the amplitude of accommodation should correspond to the working distance. The visual acuity of each employee wearing glasses is taken with his glasses on both for distance and near vision. If the distant vision is less than 20/20 or the near vision less than 0.5 at 20 inches, the employee should be referred to an ophthalmologist. An employee with symptoms of asthenopia or eye strain should be referred to an ophthalmologist regardless of the visual acuity with or without glasses. Any employee found deficient in the test for color sense should be referred to an ophthalmologist.

Employees having defects of vision that cannot be corrected by glasses to meet the prescribed standards should not be placed in hazardous occupations but should be given some other position.

If industrial visual surveys shall continue to be made by optometrists instead of under the supervision of ophthalmologists, the refraction work should be performed at the office of the refractionist and not at the plant or place of business and should be limited to the refraction of employees over 40 years of age and if the optometrist is unable to improve the vision to normal, or to 20/20 in each eye, the patient should be referred to an ophthalmologist.

Finally, I wish to emphasize, that the medical profession is in sympathy and will co-operate with any scientific progressive movement for the attainment of the conservation of vision and the promotion of the efficiency of the worker in industry; it is not opposed, but on the contrary, is heartily in favor of industrial visual surveys when they consist of what their name should imply, i. e., a complete and scientific examination of the eyes which should embrace the determination of the presence or absence of 1. an error of refraction, 2. an extra-ocular muscular imbalance or squint, 3. color blindness and 4. any pathologic or diseased condition of the eyes. Anything less than this is a snare and delusion and provocative of great harm and injury to the employee who has faith in the medical ability of the examiner, but who does not know the difference

between an optometrist and an ophthalmologist or oculist.

4458 Madison St.

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CARCINOMA OF THE MOUTH

AND THE USE OF RADIUM EMANATIONS IN ITS TREATMENT*

L. F. WEBER, M. D., AND W. A. PUSEY, M. D.,

CHICAGO

There is no more brilliant achievement in radio therapy than that which is obtained from implants of radium emanation or radon in carcinoma of the mouth. Briefly, it is usually possible to get symptomatic cures of accessible carcinomas in the mouth by this treatment. This applies not only to small localized carcinoma in the mouth, but even to lesions which are so extensive as to appear hopeless of any benefit. Even in some unpromising cases the results have been permanent for a good many years. As with surgery, however, there is no way of getting assurance against metastases in the neck or elsewhere and in many cases such metastases occur. But even if this occurred invariably the treatment would be well worth while by giving the patients a clean mouth and relieving them of the torture of slow death from carcinoma of the mouth. The treatment also has the advantage of avoiding the mutilation of surgical procedures in the mouth, to say nothing of the advantage of equally if not more radical results. We believe that the results altogether justify the statement that the treatment of carcinoma of the mouth with radium implants should supercede the treatment by surgical procedures.

The technic of treatment of carcinoma of the mouth with radium implants is the same whether the cancer involves the tongue, cheek, floor of the mouth, or tonsil. We do not use it in epithelioma of the lower lip because these growths are treated more satisfactorily by other methods.

Cancer may originate at almost any point in the interior of the mouth. Involvement of the tongue is more frequent than that of the cheeks

*Read before the Section on Medicine, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 11, 1928.

or gums. Cancer of the tongue is of the squamous type, and if left untreated is fatal within two years after the onset. The rapid growth and early dissemination is due to the rich blood and lymphatic supply, also, the more or less continual motion of the organ. The prognosis of the tongue lesions depend on the point of origin of the malignancy. For convenience the tongue can be divided into two portions, the anterior and the posterior, the dividing line being made at the circumvallate papillae. The anterior tumors are diagnosed and treated earlier. The posterior, or those located at the base of the tongue, are diagnosed after they are well developed. They are hard to reach with any method of treatment. The metastases are earlier in the posterior lesions and are discovered about the same time as the primary tumor. It is fortunate that most of the tongue cancers are situated on the anterior portion of the tongue. The most favorable lesions for treatment are those that are well localized without invading much of the surrounding tissue and before it has spread to the lymphatics or blood stream.

Cancers of the buccal membranes frequently follow extensive leukoplakias and more attention should be given to beginning leukoplakias. After cancer of the cheek has once developed it invades and infiltrates the muscles, skin, as well as the soft tissues of the lower and upper jaws. Like the tongue, the movement of the cheeks tends to spread the carcinoma. The glands are involved fairly early in the average case. The malignancy is about the same degree as the tongue lesions. It is fortunate that cheek lesions are diagnosed early; that they are accessible and favorable to the implantation of radon. In some of the tumors it is of value to cross-fire from the outside with x-rays or radium.

Carcinoma of the floor of the mouth remains localized only a short time. The arrangement of the muscular layers helps to extend the malignancy to the adjacent structures. The base of the tongue is involved frequently, so that the same can be said here as for the posterior tongue lesions. Other tumors press on the periosteum and extend to the bone.

Malignant disease of the tonsils, whether squamous-celled carcinoma, or sarcoma, is fortunately not very common. As a rule carcinoma of the tonsil is first observed about three to four

months after the onset. At this stage valuable time is lost because it is often treated with caustics and anti-syphilitic remedies. After the disease has once extended to the peritonsillar tissues it becomes more difficult to treat, and is then a hopeless situation. Surgery in malignant disease of the tonsil has been abandoned in favor of radiation. Radon therapy has been fairly successful because the tonsil in later life has a poor blood supply and is atrophic. Of course, the prognosis is better if treatment is instituted before the cervical nodes are involved.

We believe that a clinical diagnosis is of more value in the intra-oral growths than a microscopic. In many cases, particularly the later ones, a clinical diagnosis of cancer is sufficient. A positive microscopic finding is of value, while a negative report does not exclude malignancy. Inflammatory and epithelial growths of the mouth and skin are often difficult to differentiate from malignant lesions by means of the microscope.

Radon is the highly radio-active emanation in the form of gas which is given off by radium. It loses its radio-activity rapidly, but when fresh is as highly radio-active as radium itself. It is extracted from radium solution by means of a special apparatus. The radon is concentrated and sealed in small glass or gold capillary tubes. The implants are 3 to 4 millimeters in length and 0.5 millimeters in diameter and are commonly known as "seeds." They are commercially obtainable and inexpensive. In our work we have obtained the best results by using glass seeds of 0.5 millicurie and gold of 1 millicurie strength. They are implanted one seed to each cubic centimeter of malignant tissue. The number of seeds needed in a case is thus relatively few. One can hardly use more than ten to fifteen seeds in the most extensive case in the mouth. To estimate the number of seeds required the growth is divided into imaginary cubic centimeters. One seed is placed in each cube. A uniform reaction is produced if the tubes are placed one to every cubic centimeter of pathological tissue. It is desirable to keep the implants five millimeters away from the surrounding normal tissues such as blood-vessels, nerves, and bones. A necrotic area develops around the glass seeds from the beta rays. The gold seeds produce a very slight amount of

necrosis because the wall thickness of 0.2 millimeters absorbs ninety per cent. of the hard beta rays giving practically only gamma radiation. The gold seeds are gradually taking the place of the glass seeds in the treatment of intra-oral cancer.

The insertion of the seeds is a simple process which can be done with or without local anesthesia. A wire needle of a trocar is withdrawn a short distance from the point of the trocar; the trocar is then loaded with a seed by means of a forcep. The trocar is then inserted into the tumor mass the desired depth and withdrawn slightly to make a pocket for the seed. By means of the needle the implant is pushed into the pocket.

The decay of the radon is continuous, one-half of its activity is spent in 3.85 days and 99.5 per cent. in thirty days. At the end of thirty days the seeds are inert and by this time they have either become encysted or sloughed out. The total dose delivered from one millicurie is 132 millicurie hours.

The reaction from the seeds occurs a little earlier than from the surface application of radium. It begins in about a week, is usually at its height in 10 to 21 days, and then gradually subsides. During the reaction the lesion becomes swollen and painful. The tissues adjacent to the lesion treated with radon often become painful; this may be unavoidable. After the reaction subsides the lesion softens and heals slowly.

It has been our practice to use a large initial dose to destroy the growth at an early stage or before extension has taken place. Second applications do not respond so readily as the first, because part of the tumor has been replaced with fibrous tissue. It is for this reason that we try to make the first treatment all that is to be given, but it is advisable to give a dose which produces only as slight an amount of caustic action as is consistent with complete destruction of the carcinoma.

The treatment of the cervical nodes is more of a problem than that of intra-oral cancer. Recently the trend has been to be more conservative in the handling of this special problem. The lymph glands are true protective organs against cancer and secondary infection, therefore, interference with their natural defense should be cautious. The glands of the neck become involved

in one of two ways: either by direct growth along the lymph vessels, or by cell emboli becoming lodged in the glands. Superficial papillary lesions of the mouth do not extend or metastasize as rapidly as the deeply infiltrated tumors. Also, cancer of the tongue and tonsils metastasize earlier than those of the cheek and floor of the mouth.

In the cases where the nodes are not palpable we treat the front and sides of the neck with filtered x-ray. In these cases without glands, x-rays perhaps stimulate the protective defenses of the nodes as well as destroy the metastatic foci. The patients are given two or three courses of x-ray treatment and are examined frequently to see if palpable nodes develop. The enlargement of the glands is usually the first sign of cancer in the neck. But it is to be remembered that all enlarged glands are not due to cancer; many are inflammatory. If they are inflammatory at first, it later gives them a better chance to become involved with cancer, because the cancer cells are carried along with the inflammation. It is necessary to keep the mouth in the best possible shape to prevent such an infection.

If the glands are clinically malignant and only one or two involved, they are best treated by having them removed surgically. X-ray treatment of course should be given before operation and shortly afterward. In those cases in which the nodes are palpable, x-rays tend to inhibit the progress of the disease and perhaps makes the patients a safer operative risk.

In the later stages, where the glands are involved and the capsule ruptured, the process extending to many glands and lymph vessels, it is a problem of handling immovable nodes that are fixed to the surrounding structures. These cases, of course, are inoperable. The best that can be done here is palliative treatment with x-rays or by the implantation of radon in the tumor mass.

DISCUSSION

Dr. H. A. Potts, Chicago: I must corroborate the remarks of the speaker, Dr. Pusey, and concur with what was said in the paper. When we read statistics and hear men report results, we are at times a little disappointed. At least we cannot duplicate in such a brilliant manner, many times, as was outlined by the statistician.

Early diagnosis, of course, is the secret in the treatment of carcinoma and its cure—because we do cure a few when we get them early enough.

but as Dr. Pusey has said, it is difficult to make an early diagnosis.

There is one very serious thing which happens, especially in the mouth, and that is when some lesion appears the diagnosis is not made but a little iodine is put on it telling the patient to return the next week to see how it is. The patient returns, the lesion may be no worse, but it is not any better and perhaps a little trichloroacetic acid or some other drug is put on and he comes back in another week. This continues for an amazing length of time, frequently until there is no question about it clinically; then it is too late. Consequently, it has been my rule to advocate to my students that any lesion in the mouth which does not greatly improve within two weeks, even if nothing is done, should be looked upon with suspicion.

In regard to removal of the glands, I think I have noticed that the glands are protective organs and that in carcinoma of the lip, for instance, which is seen fairly early, with no palpable glands or even with one or two glands very slightly enlarged, as Dr. Pusey has said, they may be inflammatory. If they are, well and good. If they are just at the beginning of a metastasis, those glands are certainly active enough to pick up a few more cells which might be dislodged by operative procedure; consequently we have been removing the primary growth and treating the glands in the neck with x-ray. The results have been satisfactory, I think.

If the glands continue to enlarge, then we do a radical excision of all the gland-bearing material, not only what is visible but do a sharp excision of all the gland-bearing area. That applies more particularly to malignant growths on one side of the mouth, but in the tongue it is different, as metastases may occur on both sides.

The advent of the gold radon tube, I think, is a great improvement. When the old radium needles were used, especially in the jaw—not in the tongue or in the floor of the mouth, but in the jaw—many times we got an intense neuritis which I do not know how to control. The enjection of alcohol at the foramina of exit will not stop that pain as it is a terrible thing.

Carcinoma of the jaw is, I think, a little different. Personally, I feel better satisfied when I can burn it out with an electric cautery and it is amazing to me how the cautery, a large cautery, will wade right through and destroy and you will see your carcinoma disappear under your eye, but when normal tissue is reached, for some reason or other it will not burn. One must hold the point on the fibrous tissue a long time to burn it, and somehow or other that gives me a little more confidence that I have gone beyond the growth—burning it out of the jaws, even in the angle of the jaw and over a little into the tonsillar area of the floor of the mouth. In the experience of Dr. Gilmer and my-

self, I think the cautery has been fairly satisfactory in many cases.

Surgeons are not very successful in having a patient resort to a complete removal of the tongue or even a hemi-removal when the lesion is small. It is mutilating and severe. We get cures—cures I think are probably governed by the malignancy of the individual case. Some of these cases are not prone to metastasize quickly; others are of a very slow growth and those are, of course, the ones in which the brilliant results are obtained. So I think that the radon is the ideal method of treatment, especially in the carcinomata of the tongue.

Dr. W. A. Pusey, Chicago (closing discussion): I think that it might be well to call your attention for a moment to the very unfavorable situation that carcinoma of the mouth presents for ordinary methods of treatment. Even with the best results the removal of the tongue is an exceedingly mutilating procedure and even if you get a radical result, the mutilation remains. But radical results from all sorts of destructive measures other than radio-active energy, are exceedingly rare. The course of a patient with carcinoma of the mouth is one of the most unhappy things that I know. To die with a carcinoma destroying the mouth is a miserable fate.

If these radium implants did nothing but palliate that condition, they would do a great deal and they sometimes do more than that. I was rather slow to take up the treatment. Indeed, I was urged to it by my associate, Dr. Weber, and the first case that I treated I remember was so striking in its results that I became enthusiastic.

That was a man with a carcinoma that involved practically the entire tongue, a sloughing mass. The patient was sent by Dr. Jos. A. Miller. We stuffed these seeds all through the tongue, and to my amazement, got a symptomatic cure. The man's tongue entirely cleaned up. It was sclerosed naturally, from the scar tissue that was produced, but he was left with a functioning tongue as far as speech and everything else was concerned. The man lived several years and then he died of something else.

Dr. Miller got a post mortem and he reported to me that they found on most painstaking examination of the neck, no evidence of carcinoma; they did find a little mass of carcinoma in his pancreas. Whether it was a metastasis or a new growth, I do not know.

That represents the best sort of results that I have seen from the use of radon, as it is called, in carcinoma of the mouth. I have seen that duplicated many times. I have seen some failures. The best results that I have seen have been in the body of the tongue in the anterior two-third and in the floor of the mouth.

I have one patient whom I recall right now who had a rather extensive carcinoma in the floor of the mouth, under the front of the tongue whom I

treated a couple of years ago. I supposed he was ended.

Well, about three months ago I was called, to my amazement, to see if I could not get him to stop drinking. He concluded he was going to die of cancer of the mouth and was drinking himself to death. The floor of the mouth was absolutely clean. As far as I can make out, the man has no carcinoma left.

These two cases represent the favorable results you get and even where you do not get those results, you can usually get a local cure in which cases the patient at least dies of carcinoma somewhere else rather than carcinoma of the mouth, and I would much rather die with carcinoma of the liver or pancreas or even of the neck than a carcinoma in my mouth!

The symptomatic results are beautiful. The beauty about it is the simplicity of the treatment. You take a hollow needle about two inches long, as big as a darning needle, with a sharp point and a little wire trocar. These radon seeds are about the diameter of a cambric needle and three-sixteenths of an inch long. If you are fifty years old you cannot see them without your glasses.

You pick them up with a little pair of forceps, retract the trocar a little, stick in the needle, push that into your mass. You want to get one into each mass of tissue that is about the size of an average dice. You poke it in, put in your three or four or five or six, and all the work is done. Sometimes we do it under local anesthesia, sometimes we do it without anesthesia. The pain is trivial. The subsequent pain is sometimes, I think, rather hard, but as a rule, it is not.

The radon is inexpensive. You buy these glass seeds, a millicurie each, for three dollars and gold ones for four dollars. The gold ones are better because they screen out the beta rays, give less reaction and necrosis and get equally good results.

Take a mass of carcinoma as big as a plum, for example, and you can't put more than four or five seeds in it, so the treatment is inexpensive, it symptomatically has fine results and it has radical results, in my judgment, more than any other method of treatment with which I am familiar.

I would summarize it by saying that it is as much an addition to treatment of carcinoma of the mouth as is radium in the treatment of carcinoma of the uterus.

Dr. Pusey (Closing Discussion): I quite agree with Dr. Potts about the treatment of carcinomata that involves the bone. We were referring altogether to carcinomas in the soft tissues of the mouth. In my experience radium and x-rays are practically futile in comparison with surgery when the carcinoma has involved the bone. Sometimes when there is only periosteal involvement and the tumor is immovable, you may treat it all right, but if the carcinomatous mass is in the bone we did not mean to say that we thought radon or x-ray was as adequate as surgery.

HEART DISEASE IN CHILDHOOD

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CHICAGO

The chief factor in the production of heart disease in children is the rheumatic diathesis, under which we must include chorea, growing pains and repeated sore throat. In the attempt to control cardiac disease, early diagnosis and continued observation, with eradication of all foci of infection are necessary. Children who have had rheumatism or chorea must be regarded as pre-cardiacs and should preferably have a definite examination at regular intervals.

This boy of ten comes to us with an acute rheumatic fever involving several joints, and has a definite history of frequent sore throat. On careful analysis of his past history we find that a year ago he passed through a sick spell with general ache, anorexia, tiredness, restlessness, palpitation and shortness of breath, but had no medical supervision at that time. In spite of repeated sore throats the large, cryptic and infected tonsils have not been removed, but are at present again inflamed. There are in addition several carious teeth and an alveolar abscess. The white cell count is 15,000 and may be taken as an index of active infection. In chronic endocarditis or rheumatism in which we have eliminated other sources of infection, the presence of leucocytosis can be taken as a presumptive sign of the reactivation of our rheumatic infection. The hemoglobin is 80% which is somewhat higher than is usually found in untreated chronic lesions. The left heart is one inch to the left of the midclavicular line, the right heart border is substernal, and there is a soft blow replacing the systolic cycle, with a presystolic crescendo at the apex and base. A thrill is palpated over the left heart. The liver and spleen are not enlarged and the chest findings are within normal limits.

In the presence of mitral stenosis and a possible pericardial friction rub, and in spite of the primary rheumatic history the primary endocarditis was undiagnosed and untreated, and most likely occurred a year ago. The lesion that appears with the first classical signs of rheumatism, now, is therefore a chronic valvular heart lesion with a possible beginning exacerbation.

Little progress can be made in our attempt to

limit and control heart disease in childhood until knowledge of the great danger of the mild infection is broadcast to the parents and caretakers of the younger generation. We must stress the severe endocarditis which may follow the untreated mild rheumatic manifestation of "growing pains," general ache, easy tiredness, anorexia and pallor. Mild acute endocarditis may manifest itself with nothing more than a low grade fever, anorexia, general ache, slight shortness of breath and general malaise. Symptoms as repeated sore throat, otitis media, dental caries, alveolar abscess and cervical adenitis should also be regarded as indicators for a general examination.

Some progress in our fight on heart disease can be made through careful re-examination of children at definite intervals, and the careful supervision of children with a rheumatic history. The actual management of cardiac children is a matter of rest, gradual activity and diet. Light, either as sunlight or as ultraviolet rays seems to be of value in improving the general well being of cardiac children, possibly through the improvement of appetite and mental attitude.

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PASTEURIZED MILK AND SANITARY MILK CONTROL IN ILLINOIS*

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Pure, safe, wholesome milk is the one article of food which is essential for the well being of every person at some period of life. It is the indispensable food for children. Whole milk in some form must be furnished them if nutrition is to be adequately maintained and if normal growth in height and weight and normal bone and tooth formation are to be assured.

Every child from 1 year to 16 years of age is better for having a quart of milk in his daily diet. The minimum allowance for any growing child is 1½ pints daily; an adult needs 1 pint daily. Milk can be used in the cooking of food and so disguised for those who do not like it as a drink.

*Read before the Section on Public Health and Hygiene, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

†Since Sept. 1, 1928, Asst. Director, Bureau of Dairy Products, Chicago.

There is a real relation between milk and health and growth. Impaired nutrition means decreased vitality and lowered resistance to disease. Our future depends upon the stamina of the children. Milk has no adequate substitute in the diet. Milk is the chief calcium food. Milk is the cheapest source of high-grade protein. Milk is rich in the growth-promoting vitamin—vitamin A. Milk is the chief of the "protective" foods that compensate for the inadequacies of the American diet and so keeps the people well. These facts are well known but are repeated here for emphasis.

The reasons that make milk a perfect food for humans, however, also make milk a medium well adapted for the development of bacteria, and the common conditions under which it is produced result in the serious contamination of a large proportion of our supply. The contamination of milk with bacteria and the adulteration of milk with foreign substances is a matter of grave concern because such dangerous milk cannot be detected in most cases by the consumer.

Milk sold in Illinois today may be grouped roughly into three classes: 1. raw milk, 2. certified milk, and 3. pasteurized milk.

Approximately 30 per cent. of the milk sold in Illinois today is raw milk. This milk is produced within a very short distance of where it is sold and is distributed by a large number of dealers having small investments in proper milk handling equipment, generally are poorly equipped to properly handle milk, and whose daily output is very seldom greater than 50 gallons per day. In addition, these men generally are poorly trained in sanitation.

The sanitary control of the raw milk dealer is a function of the State Department of Agriculture, Division of Foods and Dairies. The supervision consists essentially of a system of sample collection and analysis together with an occasional sanitary inspection. The department has adopted standards for the composition of milk and dairy products, and foodstuffs that do not meet these standards are declared to be illegal. Some local departments of health also assist in the supervision of these dairies. In only a few cities, however, have suitable standards been enforced which require that the raw milk sold will be handled in a satisfactory manner.

About seventy-five Illinois cities have adopted

some sort of a milk ordinance which is unquestionably a step in the right direction but unless some provision is made for carrying out the requirements of the ordinances, it cannot be assumed that the milk supply is properly regulated.

Certified milk is the product of dairies operated in accordance with accepted rules and regulations formulated by authorized medical milk commissions. Certified milk is the highest grade of raw milk anywhere obtainable, but because of its exceedingly high price required by the extreme care exercised in handling it, there is but a small amount of certified milk sold in the State away from the Chicago market. In this connection it must be remembered that it is exceedingly important for the county medical milk commission authorizing the labeling of milk "certified" to be sure that the milk is being handled in accordance with the rules of the American Association of Medical Milk Commissions.

Pasteurized milk in Illinois is milk that has been heated to at least 142° F., never more than 145° F., and held at that temperature in approved apparatus for at least 30 minutes. The milk is never boiled, and nothing is added to the milk or taken from it. Approximately half of the milk sold in Illinois outside of Chicago is pasteurized, and more than 70 per cent. of the milk sold in the entire state is pasteurized.

Under the milk-pasteurization plant law which was adopted in June, 1925, the State Department of Public Health supervises the construction and operation of all Illinois milk-pasteurization plants and supervises the handling and sale of that milk in the State. Minimum requirements have been prepared and adopted by the Department in accordance with the law, and a plant is granted a certificate of approval when properly equipped and operated.

Following the initial inspections of the 306 milk-pasteurization plants in Illinois in 1926 (not including those in Chicago), a summary was made showing the defects found in the plants at the first inspections. This summary was presented to you at your annual meeting in Urbana in 1926.

Since that time a great deal of work has been done by the State Department of Public Health in inspecting the milk-pasteurization plants and in improving the milk handling in accordance with the law so that the milk and milk products

sold in Illinois labeled "pasteurized" would be assuredly safe. We are very glad to report to you at this time that more than 98 per cent. of the defects originally present have been corrected and that today there are 316 plants located in 174 cities in Illinois that are properly operated and which have received from this department a certificate of approval. Within the next few months all of the 341 plants will have been certified.

This improvement has been brought about entirely by a program of education and cooperation. Only a few of the very poorly equipped and operated plants in the State were forced to give up pasteurization because of difficulty in meeting the department's requirements (and these few plants should have been forced to discontinue years before), while during the same period 35 new plants applied for a certificate of approval. Thus there has been an increase of more than 11 per cent. in the total number of plants in the State during the past year while the consumption of pasteurized milk has increased more than 15 per cent. during the same period. It is significant to note that although the plants have gone to considerable expense and effort in improving their equipment and methods and in greatly improving the quality of the milk itself, in not one single instance has the cost of the milk to the consumer been increased.

In communities of less than 1,000 population the construction and operation of a milk-pasteurization plant is not always a profitable commercial venture. Pasteurized milk is often brought into these towns from nearby cities, and in some instances the milk is pasteurized in the home, although most of the milk is consumed raw.

Where pasteurized milk is available oftentimes there is some prejudice against its use. Because the Department of Public Health believes that pasteurized milk is the best general milk supply for municipalities, we have been keenly interested in determining whether or not there is a legitimate objection against its use.

One statement often made against the use of pasteurized milk is that it is merely a poor quality milk that has been heated to keep it sweet.

Nothing could be farther from the truth. Our present requirements make it compulsory

for the plant operators to make tests of the milk as it is delivered to the plants, and many plants pay the producers on a quality basis. Milk that does not meet the required standards is rejected. The milk dealers of Peoria, in co-operation with the producers, have recently formed a milk testing commission, and in a short time all of the raw milk delivered to Peoria pasteurization plants will be purchased on the basis of butter-fat tests, sediment tests and methylene blue classification. The raw milk will be improved when the farmer is rewarded for producing a quality product.

The State Department also supervises the quality of the raw milk delivered to the plants. During the last three months of 1927, the Department of Public Health collected more than 1,500 samples of raw milk and on these samples determinations were made of the temperature of milk, its acidity, the amount of visible dirt present and the bacterial quality of the milk. It was found that the quality of the raw milk brought to the pasteurization plants compared very favorably in quality with the milk sold as raw milk in the community. Pasteurization will not make a poor quality of milk good and this fact is recognized by the plant operators because competition demands that the milk sold shall be of a good quality. Many of the larger concerns employ field men to educate the farmer to produce a cleaner and more wholesome product.

During 1927 a mobile milk testing laboratory was purchased, equipped and placed in operation to assist in improving the quality of raw milk coming to the plants, the efficiency of the plants, and the quality of the milk as it is ready to be distributed to the consumer. Detailed inspections of 32 milk-pasteurization plants located in Springfield, Urbana, Champaign, St. Joseph, Bloomington, Rockford, Rochelle and Decatur were made during the latter part of 1927. Analysis of 1,798 samples were completed. Bacterial plate counts were made of the bottled milk, and of milk bottles, cans, and equipment to determine the efficiency of their sterilization.

That the pasteurized milk sold in the State today is of exceptionally good quality is borne out by results of the bacterial counts of all of the samples of bottled "pasteurized" milk from the 32 plants, which showed the remarkable low av-

erage count of 18,000 colonies per cubic centimeter as determined by the official plate count.

The statement is often made that pasteurization destroys some of the food value of the milk. The only effect that pasteurization may have in impairing the food quality of the milk is the partial or total destruction of the vitamin C. This really is not such a serious fault in the case of infant feeding as may be imagined. The addition to the diet of cod liver oil, or fruit juices, readily adds the vitamin that is reduced. Leading pediatricians advocate the use of scalded or boiled milk whether it is raw or pasteurized in order to better bring about its digestion so that in reality heating of milk may be a greater help than a detriment.

It is claimed that pasteurization is not necessary nor is it always effective and that raw milk from tuberculosis-free cattle is as safe as pasteurized.

In a study recently made by the American Child Health Association and by the U. S. Public Health Service, it was definitely shown that in the United States there occurs one outbreak of milk-borne disease each week or about 50 outbreaks each year, involving thousands of cases and including typhoid fever, diphtheria, scarlet fever, septic sore throat, diarrhea, enteritis, Malta fever and certain other diseases. In Illinois we have about three outbreaks each year from contaminated raw milk. It is important to remember that much illness and many deaths in children result from diarrhea and enteritis from impure milk but which are not directly traced to it.

Tuberculosis is but one of many diseases that are transmitted through milk. It is important to remember that about 80 per cent. of all pasteurized milk sold in Illinois is from cows that have been tested for tuberculosis, a figure that compares very favorably with the amount of raw milk sold as "T. B. Tested."

The most important benefit of pasteurization is that it effectively destroys all pathogenic organisms that may be present.

The charge that pasteurization is not always properly done, does not hold true in Illinois. Every plant is frequently inspected and operates in conformance with the law so that the milk sold is assuredly safe. There has never been an epidemic traceable to pasteurized milk in Illinois

nor has any outbreak been traced to properly pasteurized milk anywhere.

Many cities have realized the advantages from pasteurized milk and have passed ordinances within the past few years requiring compulsory pasteurization. Chicago and practically all of the communities near Chicago, such as Evanston, Maywood, and Cicero have adopted such legislation, as has Streator, Joliet, Cairo and Kankakee. Other cities such as Rockford and Elgin have brought about a very large consumption of pasteurized milk by means of education and co-operation.

The State Department of Public Health believes that at this time the best general milk supply for municipalities is pasteurized milk. It is no longer true that pasteurized milk is a very poor quality of milk that has been pasteurized in order that it will keep until delivery. It is no longer true that the raw milk delivered to milk-pasteurization plants is produced under filthy conditions and delivered dirty to the plants. It is no longer true that pasteurized milk is not assuredly safe. The fact that the plants must meet the rigid requirements of the State Department of Public Health in producing and selling pasteurized milk is an assurance that the milk is clean, wholesome and safe.

Illinois now has one of the best supplies of pasteurized milk anywhere available. In the communities where it is available it is recommended for use.

DISCUSSION

Dr. N. O. Gunderson, Rockford, Ill.: That the State Department of Public Health has been a great factor in elevating the standards under which pasteurized milk is produced and transported in the state of Illinois is very vividly brought out in the excellent paper just read by the essayist, Mr. Paul Krueger. Not only has progress been shown, but the benefits accruing to young babies, youngsters, and adults are manifesting themselves in terms of a general lowering of morbidity, infant mortality, and general death rates.

Pasteurization is now more than ever before looked upon as the only safe means of protecting a city's milk supply. In these terms, is it not encouraging that there has been an increase of eleven per cent. in the number of pasteurization plants, and a fifteen per cent. increase in the amount of pasteurized milk consumed throughout the state of Illinois?

It is regretted that pasteurization can not be extended more rapidly to the smaller cities of the

state, especially in view of the large number of untested dairy herds in the state, but here also a note of warning should be sounded. With the rapid acceptance of tuberculin testing should we not be careful about substituting this test for pasteurization? That is, let us see to it that the tuberculin testing of dairy herds supplements but does not supplant pasteurization.

In other words, many milk ordinances contain a clause that milk shall be pasteurized or derived from cows that are under state and federal supervision. This latter clause has, as in California, led many cities to make the mistake of thinking that milk from tuberculin tested herds in the raw state fulfills all the requirements of pasteurization, which is not true.

In closing, let it be said that every health officer perhaps should ask the question, "Is the milk supply of my city free from tuberculosis germs?" besides the question, "Are all the dairy herds under state and federal supervision?"

There is a great deal of difference between the two and can be answered only in terms of the following statement: *"Let the tuberculin testing of dairy herds supplement but never supplant pasteurization which is being so ably supervised by the state department of public health."*

I wish to commend the excellent progress shown by the paper just presented.

Dr. Gottfried Koehler, Chicago: I listened with a great deal of interest to the progress made by the essayist. For a long time we in Chicago thought we had a sort of monopoly on the control of the milk supply, but it seems that excellent work is now being done elsewhere, especially throughout the state of Illinois.

I was particularly interested in the various phases of the control of pasteurization touched upon by the essayist, and especially interested in the mention of the portable laboratory which the State Department of Public Health has used in checking up on the milk supply of the various cities in the state. I should like to hear from him if he thinks that such a laboratory will be feasible for us in a city like, say, Chicago; also, if he finds it more convenient and profitable to use this laboratory in the field than to send the samples to a central point, as we have been doing for a number of years.

I have thought, personally, that in the control of our Chicago milk supply, which comes from a very large territory surrounding Chicago from as far distant points as northern Wisconsin, central Michigan, and certain seasons of the year, from Iowa and Ohio, that we might very well make use of a portable laboratory, such as the state has used in its work.

It has come to our attention recently that the state, in checking up on the milk plants in the northern district, has not only gone over the plants, but has also checked up on the precautions that are

taken to protect the milk supply from infection after it has been pasteurized.

In that connection they are making examinations of the workers, particularly those that assist or take part in the bottling and capping of the milk. The pasteurization may be perfect, but if we have hand capping, as we have had in some of our plants, there is danger of reinfection in case a typhoid carrier should be employed in that plant.

We are not making physical examinations of employees in the milk plants at the present time. I should like to hear something more from Mr. Krueger on this point. Has the work that they have been doing, shown any infection of the workers? Have they found any carriers, and how far are they going in the examination of these workmen?

I was very much interested in what Dr. Gunderson said. I know of Dr. Gunderson's excellent work in Rockford. I have had occasion to go over some of his reports; and the reading of those reports helped to convince me that Chicago is not the only city that is doing excellent work in attempting to control its milk supply.

Dr. Benjamin Goldberg, of the Municipal Tuberculosis Sanatorium, recently sent a communication to the Department of Health, asking if we had made any examination of milk obtained from dairies where the herds were under government and state supervision, with a view to determining whether such milk contained tubercle bacilli. We are now engaged in making such examinations, and I am very much interested to know what the result will be.

I do not quite agree with Dr. Gunderson that freeing the milk from living tubercle bacilli is the main object to be attained in milk control, and if that result is obtained pasteurization is unnecessary. Such a method of procedure might be possible in smaller communities, but in a larger city, particularly a city the size of Chicago, it would be practically impossible for us to keep such a check on the farms and on the bottling plants, assuming that pasteurization would be eliminated, to insure against infection from other communicable diseases.

Previous to the time that we had universal pasteurization in Chicago (as Dr. Rawlings well knows—he made his reputation in digging out those epidemics), we had extensive local epidemics due to infection of the milk supply produced on a farm just outside of Morgan Park; a typhoid infection and epidemic resulting from that infection was located in the southern part of the city.

We closed down that farm, in fact, made this particular carrier stop her work in connection with the farm. Soon afterwards we had another epidemic on the north side. Tracing it to the country, we found that the farmer who had lived near Morgan Park had moved to the northwest part of the state and was there engaged in the production of milk; and this same carrier that he had had on the farm was again engaged in handling the milk, and very promptly a second local outbreak resulted. Those

things can be guarded against and prevented, as our experience has shown, only by proper pasteurization of the milk supply.

Mr. P. F. Krueger (closing): This paper of ours was presented mainly as a progress report. At your meeting in 1926, you were informed of the defects found in the plants at our first inspections. As time went on, we corrected those defects in plant construction and operation, and now we are just as frank in telling you that we believe Illinois today has one of the best supplies of pasteurized milk anywhere available. The use of the mobile laboratory will make the supply even better.

In reply to the question of Dr. Koehler regarding the use of the portable laboratory for the city of Chicago, I believe the city would have a very good use of a similar laboratory because several men could check one or more plants each day. In fact, that is our operation. We are at one plant today, obtain samples and make determinations, and then move to another plant so that we will be ready to operate at the new location the following day. I think there would be considerable saving in time over the present method in use and because of the facilities available I think a great deal more work could be done with the same personnel.

We are very much interested in knowing more about the use of health certificates for the examination of food handlers. We have required health certificates of the milk handlers and the first year we had about 600 sent in; the next year about 800, and this year we have over 1,100.

We ask these questions, aside from a few stereotyped ones: "Has the applicant tuberculosis? Open case? If so, have you collected early morning sputum in a container furnished by the State Department of Public Health and sent same to State Laboratory for examination?"

"Has applicant sore throat? If so, nature of disease and evidence?"

"Has applicant discharges from glands or other parts of body? Has applicant diseased tonsils? Was a diphtheria swab taken? If so, was test positive or negative?"

"Has applicant active venereal disease? What evidence?"

"Does applicant give history of having had typhoid fever? If so, specimen of the stool of the applicant shall be sent to the State Laboratory for examination for typhoid carrier suspect. Have you sent such a sample?"

Then we close the certificate with the following: "I certify that on the basis of the physical examination I have made that in my opinion the above named person is free of tuberculosis, venereal disease or any other disease capable of being carried in or with the milk or milk products of such plant."

It is signed by the examining physician.

I think one of the best uses of this certificate has been to inform the physicians in the state that we have a milk pasteurization law and that we

really visit the plants, inspect them, and check their operation. Then, too, the annual examination is a good thing for the employee. We have found 45 workers in various plants showing typhoid histories, although in only one case did we find an employee to be a carrier. Nevertheless, I feel that that one case rewarded us for all of the work that has been done.

We plan on revising our present certificate and we will welcome suggestions for its improvement.

THE INDICATIONS FOR RADIATION
THERAPY IN BENIGN UTERINE
HEMORRHAGES*

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The most important and practically sole indication for radiation therapy in benign diseases of the uterus is hemorrhage. Uterine hemorrhages may accompany a great variety of pelvic and extra-pelvic diseases. It is evident that the disease and not the symptom "hemorrhage" should be treated. Hence a study of 2117 consecutive hospital records from the gynecologic department was made: 1. to study the incident of uterine hemorrhages; 2. to elucidate the underlying causes and diseases; 3. to show by statistics the percentages of the various methods of treatment used, i. e. radiological, surgical or medical; and 4. to discuss the indications for the various methods of treatment.

Uterine hemorrhages have been divided into those dependent upon recent pregnancy, and those independent of recent pregnancy. Hemorrhages resulting from accidents of pregnancy, labor and puerperium and from extragenital diseases are as a rule assigned to the obstetrical and medical departments. However a small number were assigned to the gynecologic department and therefore present a low average in this survey which might lead to erroneous deductions as to frequency.

Accidents of pregnancy, labor and puerperium constitute a large number of uterine hemorrhages. It is imperative that the possibility of such disturbances must always be borne in mind to prevent errors in diagnosis and treatment. If a woman during the child bearing period of life

complains of amenorrhea or of a uterine hemorrhage taking place after a period of amenorrhea or a missed menstrual flow, she should be deemed pregnant until proven not to be pregnant. A waiting attitude and observation will help in the diagnosis. Of the fifty cases listed under metrorrhagia in the column on abortion fifteen had an extrauterine pregnancy, eight subinvolution, twenty-four incomplete or threatened abortion, three a hydatid mole, and one a chorionepithelioma.

A small number of uterine hemorrhages is caused by acute infectious diseases as influenza, typhoid fever, scarlatina, variola, rheumatic fever, etc., and chronic organic diseases of the heart, lungs, liver and kidneys if they produce severe toxemia or general passive hyperemia.

The Frequency of Uterine Hemorrhages.

A menstruation which lasts too long or is too profuse is termed hypermenorrhea; if it occurs too soon, that is every twenty-four days or oftener, it is termed polymenorrhea. A uterine hemorrhage varying from a mere "spotting" to very profuse amounts and taking place independently from the menstrual flow is termed metrorrhagia. There must be an aberration from the habitual course of menstruation and it must have been existent for some time in a given instance to place such occurrence in the group of uterine hemorrhages of menstrual type,—collectively also called menorrhagias. However each spotting of blood or unusual bleeding occurring at any period of life calls for an immediate investigation to rule out disease and particularly malignancy. Table 1 gives the total number and percentage of each group of hemorrhages.

TABLE 1.

Number of cases admitted.....	2,117
Number of uterine hemorrhages.....	302
Per cent of uterine hemorrhages.....	37.70
In the 302 cases of uterine hemorrhages were observed:	
1. Hypermenorrhea	335 cases, or 41.98 per cent.
2. Polymenorrhea	97 cases, or 11.66 per cent.
3. Metrorrhagia:	
(a) Benign metrorrhagia.....	117 cases, or 14.66 per cent.
(b) Carcinomatas	253 cases, or 31.70 per cent.

Hypermenorrhea results from a loss of contractility of the uterine and an active or passive hyperemia. Loss of contractility follows atonicity or dystonicity of the uterine muscle. Myomata interfere with contractility of the myometrium, while hypoplasia and asthenia cause dystonicity or atonicity resulting in weakened con-

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tractility. A small number of hypermenorrheas may occur at the ebbing of menstrual life, that is after forty years, without evidence of myoma, hypoplasia or asthenia. Such hypermenorrheas are probably caused by a uterine asthenia and small myomatous nodes. The former are seen more frequently in multiparas with many children, the latter in nulliparas or in women with few children.

Active hyperemia is associated with the infectious diseases of uterus and adnexa; and passive hyperemia with displacements, trauma and subsequent scar tissue formation, and with cardiac, renal, hepatic and pulmonic disease causing general passive congestion. In either instance the blood supply to the uterus is abnormally increased, resulting in profuse menstruation.

TABLE 2.
1. HYPERMENORRHEA

The menstrual flow is too profuse and prolonged							
a. Loss of contractility present in 157 cases or 47.16 per cent.				Hyperemia present in 147 cases or 52.28 per cent.			
Disease	Myoma	Hypoplasia	Asthenia	Menopause Bleeding	Infection	Displacement	Not Diagnosed
Number	87	28	24	18	131	43	2
Percent.	26.13	8.41	7.21	5.41	39.34	12.94	0.58

Polymenorrhea is characterized by shortened periodicity. The menstrual flow may also be too profuse or last too long, that is polymenorrhea may be associated with hypermenorrhea.

The periodicity of the menstrual flow depends upon the time duration of ovulation, which normally occurs within a 28-day cycle. Discrepancies of minus or plus 4 days are not considered abnormal. Below 24 days the menstrual periodicity is abnormally shortened and considered a polymenorrhea. In the process of ovulation the ripening of the follicle consumes from 14 to 18 days and the life duration of the expelled ripe ovum is 10 to 14 days. One or both of the processes may become shortened and the menstrual onset occur correspondingly earlier. As soon as the ovum perishes, the menstrual decidua becomes detached, menstruation is started, resolution of the yellow body ensues and another graafian follicle begins to mature. Hence polymenorrhea is an outward sign of a disarranged ovarian function. Such dysfunctions are primary or secondary. Primary ovarian dysfunction is associated with retarded or defective development of

the sex organs and with disturbances in the ovarian function at the terminal processes of menstrual life. They therefore occur most frequently at the beginning of menstrual life when the ovary develops to maturity and at the termination of menstrual life when ovarian function begins to ebb.

Secondary ovarian dysfunction is caused by infections invading the ovarian parenchyma, by displacements and trauma causing intense congestion of the ovary, and endocrine disturbances especially hypofunction of the thyroid and the anterior lobe of the pituitary glands. The endocrine disturbances are listed in Table 3 in the last column.

TABLE 3.
2. POLYMENORRHEA
The menstrual flow occurs too soon
Primary Ovarian Dysfunction, 35 cases or 31.11 per cent.
Secondary Ovarian Dysfunction, 52 cases or 57.78 percent.

Disease	Puberty before 20 yrs.	Maturity 20-40 yrs.	Menopause After 40 yrs.	Infection	Displacement	Not Diagnosed
Number	19	9	7	43	9	10
Percent.	13.33	10.00	7.78	47.78	10.00	11.11

Metrorrhagias are always caused by pathological tissue changes and subsequent loss of continuity of the surface epithelium by ulceration, necrosis and erosion. Since only benign hemorrhages are to be considered, the malignant diseases have been placed in Table 4 b. (See Tables 4 a and b.)

TABLE 4.
3a. BENIGN METRORRHAGIA
Chronic glandular hyperplastic Endometritis with persistent Follicle.

Disease	Puberty up to 20 yrs.	Maturity 20-40 yrs.	Menopause After 40 yrs.	Menopause Bleeding	Abortions	Senile Vaginitis	Infections	Not Diagnosed
No.	2	5	21	7	50	5	17	7
Pct.	1.71	4.27	18.77	5.98	42.73	4.27	16.29	5.98

3b. CARCINOMATA Total number of Uterine Cancers in 2,117 cases was 253, or 11.95 per cent.			
Cervix			
Number	Primary	Recurrent	Corpus
Percent.	178	69	6
	70.36	27.27	0.37

The Methods of Treatment and Their Indications. Perusing Tables 2 to 4 the statement may be made that infections, displacements and traumas, and accidents of pregnancy indicate

either medical or surgical treatment. Radiation therapy is never indicated in such diseases. Thus 324 benign hemorrhages may be subtracted. The malignancies also are not to be discussed, and 253 metrorrhagias due to carcinomas must be deducted. This leaves 225 cases for study, distributed as follows:

TABLE 5.
1. HYPERMENORRHEA

	Total No.	Surg. Treatm.	Radiology	Medicine
Myoma	87	66	15	6
Hypoplasia	28	7	4	17
Asthenia	24	6	4	14
Menopausal	18	5	10	3
Total	157	84	33	40

2. POLYMENORRHEA

	Total No.	Surg. Treatm.	Radiology	Medicine
Puberty	12	3	..	9
Maturity	5	..	2	3
Menopause	16	6	8	2
Total	33	9	10	14

3a. METRORRHAGIA

Puberty	2	1	1	..
Hyperplasia .....	..	..	..	..
Maturity	5	3	..	2
Hyperplasia .....	..	..	..	..
Menopause	21	4	16	1
Hyperplasia .....	..	..	..	..
Menopause	7	4	3	..
Bleeding .....	..	..	..	..
Total	35	12	20	3
Grand total....	225	105	63	57
Per cent. ....	..	46.67	27.11	26.22

There were 87 myomata with bleeding and 15 were treated with radium, that is 17.25 per cent. To this number should be added 55 myomata without bleeding, but causing pain, pressure or discomfort. The table then reads as follows:

Total No. of myomata...142 or 6.71 per cent. of 2,117 cases
Bleeding myomata 87 or 61.27 per cent. of 142 cases
Surgery used in.....108 or 75.54 per cent. of 142 cases
Radiation used in..... 15 or 10.79 per cent. of 142 cases
Medicine or observation 19 or 13.67 per cent. of 142 cases

Myomata are new growths and present a different aspect for treatment than the menstrual disturbances due to abnormal functions of uterus and ovaries and benign tissue proliferations. Experience gained by careful observations has taught us to standardize the indications for radium therapy in myoma. These are as follows:

1. Myomata not causing symptoms do not require treatment.
2. Myomata causing hemorrhages indicate radium treatment if they are:
 - (a) free from complicating pelvic infections especially adnexitis;
 - (b) not complicated with pelvic diseases requiring surgery as ovarian tumors, corpus cancers, etc.;

- (c) not larger than a 4 months' pregnancy;
- (d) not degenerating;
- (e) not growing rapidly;
- (f) located intramurally;
- (g) not complicated with a severe anemia out of proportion to the symptoms and clinical findings;
- (h) not causing pressure symptoms;
- (i) occurring in patients 36 years or older;
- (j) not occurring in patients with personal and family neurotic tendencies; and
- (k) not causing doubts in diagnosis.

The contraindications, of course, are the direct opposites.

When the indications and contraindications are carefully weighed, then it is not surprising that the percentage of myoma treated with radium in this series is so low.

The conclusion is justified that the treatment of choice in myomata is surgery. Whenever indicated radium should be used as it obviates the dangers of surgery.

Hypoplasia, asthenia and menopausal hypermenorrhea numbered 70 cases. The treatment applied was:

- Surgical in 18 cases, or 25.71 per cent;
- Radiological in 18 cases, or 25.71 per cent;
- Medical in 34 cases, or 48.58 per cent;

The predominant method of treatment in hypermenorrhea due to atonicity and hypoplasia of the uterus was therefore medical; radiations and surgical methods were used in about 25 per cent for each method. The medical treatment consisted in the use of ergot, hydrastis, pituitary extract from the anterior lobe, adrenalin, regulation of exercise and food to develop and build up the body. If medical treatment failed then dilatation and curettage were employed, and if the latter failed, radiations were used. ¹ However the contraindications to radiation therapy were strictly enforced. They are: 1. Co-existing pelvic infections as adnexitis and pelvic peritonitis; 2. Desire for offspring; 3. Age, patients 36 years or younger; and 4. Neuropathic tendencies either personal or familial.

The number of polymenorrheas was 33.

- Surgery was used in 9 cases, or 27.28 per cent;
- Radiation was used in 8 cases, or 24.24 per cent; and
- Medical treatment sufficed in 16 cases, or 48.48 per cent.

The indications for the various methods were the same in polymenorrhea as those used in hypermenorrhea.

Ovarian dysfunction was combatted by the use of anterior lobe pituitary extract and ovarian follicle extract during the period of supposed follicle maturing and corpus luteum extract during the proliferating and secreting phases of the menstrual cycle. These phases were determined from the history. Frank's method of sexual hormone determination will be a great step forward in correct treatment, as thereby the secreting phase of the endometrial cycle may be definitely shown. If the results of medical treatment were unsatisfactory then dilatation and curettage were done. If these failed radium was used, provided contraindications did not exist.

The entire number of hypermenorrheas and polymenorrheas, collectively classed as menorrhagias, was 190.

Medical treatment was employed in 56 cases, or 29.47 per cent.

Surgery was indicated in 93 cases, or 48.95 per cent.

Radiation was indicated in 41 cases, or 21.58 per cent.

The metrorrhagias, due to benign hemorrhages, numbered 35 cases.

Surgery was used in 12 cases, or 34.29 per cent.
Radiation was indicated in 20 cases, or 57.14 per cent.

Medical treatment was given in 3 cases, or 8.57 per cent.

Chronic glandular hyperplasia of the endometrium results from a persistent follicle. On bimanual palpation the follicle may be palpated as a cyst the size of an English walnut. The menstrual decidua continues to grow. Finally ulceration or necrosis takes place in the uterine mucosa giving rise to the alarming hemorrhages observed in such cases. There is an absence of menstruation at the expected time, and the hemorrhage occurs within one to three weeks later. To make a diagnosis curettage and histological tissue examination are essential. Curettage arrests the bleeding in about 50 per cent. Radium is indicated if the hemorrhages recur, the patient is 36 years or older, and infections and other pelvic diseases do not complicate the hemorrhagic metropathy. The insertion of radium must be preceded by another curettage and microscopic examination to rule out malignant degeneration.

It must be emphasized that a patient suffering from uterine hemorrhages should not be treated unless the underlying cause has been determined

and a correct diagnosis made. All uterine bleeding must be viewed with grave suspicion until it has been proven to result from benign diseases. If the introduction of the uterine sound into the uterine cavity with strictest asepsis causes a thin stream of bright red blood to escape into the vagina and if the trickling of blood continues for some time after the manipulation, then this observation may be regarded as highly suspicious for malignancy. If an ulcer or erosion on the vaginal portion of the cervix is touched with a cotton applicator and free arterial bleeding ensues, then the ulcer is probably malignant. Such cases should at once be subjected to curettage and diagnostic excision of the erosion or ulcer. The tissues must be examined microscopically to rule out or rule in malignant disease.

Finally every woman suffering from uterine hemorrhages should be examined and, if the cause does not become evident, the uterus should be curetted and the scrapings examined microscopically.

Summary.

1. The number of patients with uterine hemorrhages was 802 or 37.70 per cent, in 2117 cases admitted to the gynecologic service of the hospital.

2. The uterine hemorrhages were divided into three groups:

1. Hypermenorrhea, or profuse and prolonged menses, numbered 335 cases, or 41.98 per cent;
2. Polymenorrhea, or too frequent menses, numbered 97 cases, or 11.66 per cent; and
3. Metrorrhagia, or uterine hemorrhage occurring without the menstrual period, numbered 370 cases, or 46.36 per cent., which number includes 253 cases or 31.70 per cent. of cancers.

3. The underlying causes and diseases have been discussed and grouped with the respective numbers and percentages. Those groups indicating medical or surgical treatment or containing the cancers have been deducted as the purpose of the study is "the indication for radiation therapy in benign uterine hemorrhages." The number thus remaining was 225 cases.

4. The methods of treatment employed in each group has been given in numbers and percentages and the indications for radiation treatment discussed.

Medical treatment was curative in 59 cases, or 26.22 per cent;

Surgical treatment (that is dilation and curet-

tings) was curative in 105 cases, or 46.67 per cent; and

Radiations were indicated in 61 cases, or 27.11 per cent.

5. Finally emphasis has been given to the necessity of a correct diagnosis before treatment is begun. With a doubtful diagnosis immediate diagnostic curettage or excision of suspicious areas of tissues and microscopic examination must be performed to rule out or rule in malignancy.

25 E. Washington St.

DISCUSSION

Dr. W. C. Danforth, Evanston: Mr. President, Ladies and Gentlemen: I think while we all agree absolutely upon the value of radiological therapy in certain gynecological conditions, it is quite possible we disagree as to the frequency with which radiotherapy is indicated. Dr. Schmitz should be complimented on having given a very understandable and complete exposition of the subject of benign uterine hemorrhage and his terminology: hypermenorrhea, polymenorrhea—I think is of value because it enables us to use a single term rather than a descriptive sentence in referring to these conditions which we meet so often.

The fact that in a long series of gynecologic patients admitted to a gynecological service in a hospital, 37.7 per cent. required treatment for bleeding is of course of great interest to one who works in the field that he and I do.

He has very carefully set forth the value of the various means of therapy. I think it should be emphasized that radiotherapy and surgery are not competitors—that each should be used for definite indications. For some cases irradiation is very definitely superior to surgery and in a good many other instances surgery is of more value than irradiation. We should therefore not fit the patient to the type of treatment but rather pick out the type of treatment which the particular type of case requires.

This of course requires a certain degree of familiarity with the underlying pathology. There are two very common types of non-malignant bleeding to which Dr. Schmitz referred which I will refer to briefly. First, the treatment of myoma. His percentage of radiologic treatment was 10.7 per cent. In a series of a hundred which I looked over not long ago from our own service, I found we had radiated sixteen per cent., but since that time a considerable number of myomata have passed through our hands and I think our percentage becomes less.

He has very carefully and efficiently set forth the contra-indications to the use of radium in the treatment of myomata and there certainly are contra-indications just as there are indications for the use of radium.

He speaks first of size as being not greater than

a four months' pregnancy. I think it is generally agreed, at least by gynecological surgeons, that the larger fibroids are better not treated with radium. In cases of small fibroids, particularly in women who are approaching menopause, the results are exceedingly satisfactory.

I would be inclined to limit the size even more than Dr. Schmitz. In our service we do not radiate over the size of a two and a half to three months' pregnancy. We are just a little less liberal as to age, as we try to limit it to women who are forty or over. Exceptions are made both as to size and age in the case of women who are not fit subjects for operations—for example, a patient which Dr. George Dick and I have under observation at this moment whose fibroid is too large for radium, I think, yet who cannot be operated on because she has a decompensated heart and an enormous aneurism. We will irradiate in that case because it is a safer thing for that particular woman.

Again, in menopausal bleeding—women who bleed profusely at or about the time of menopause. There we find radium to be the treatment par excellence. I think there is no division of opinion about that. Radium is far superior to any other form of treatment, but I do believe it should be accompanied by a diagnostic curettage because occasionally we find in these cases a corpus carcinoma which is unrecognized otherwise.

In a series of about two hundred and fifty of these which we have treated, we have had better than ninety per cent. of favorable results with one treatment of a thousand to twelve hundred milligram hours and have come to regard it as the thing to do for women who bleed at or about the time of menopause, preferably after the age of forty.

I believe there is a little tendency, perhaps, today to apply radiation too frequently and the results of this are creeping into surgical literature. I think it is of value that we should take care not to apply it where it isn't the best thing to do, because the result is that an extremely valuable method of therapy is brought into disrepute.

It is one of the most valuable adjuncts that we have, but like all other forms of treatment should be intelligently applied and, so applied, gives excellent results.

Dr. W. A. N. Dorland, Chicago: Mr. President, Gentlemen: I have always been impressed with the constructive attitude taken by Dr. Schmitz in his use of radio-therapy. It has only been since 1920, about, that the real limitations of radio-therapy have been practically well defined. The use of radium has not proved as efficacious, as widely efficacious as we had hoped it to be at first, but we can make the positive statement that in the properly selected cases it is supreme in its employment, gives better results than anything else we have. This is especially true of the non-malignant cases, which is the subject of the paper today.

Dr. Schmitz has given as the one chief or main indication for the use of radium, hemorrhage, and

in properly selected cases it is the supreme treatment for hemorrhage. I emphasize the point of there being properly selected cases.

There are a couple of precautions I wish to call to your attention which you all know, probably, but still it doesn't do any harm to repeat them. Radium should not be used in women, as Dr. Danforth has just said, under forty years of age, women who are more remote from the menstrual change, the menopause. Those women are fit cases for surgical removal and for this reason: Surgery leaves the ovaries intact, and we wish to emphasize the second precaution, that it is most important to maintain the sex function in women as far as possible. In other words, we wish to avoid the production of that distressing condition, the inferiority of abnormality complex.

I have at this moment in my care a woman, the wife of a physician of an adjoining state, who about seven or eight years ago was subjected to treatment by the x-ray and radium combined, who has had a total arrest of her sex function, and that is her distressing symptom today. She is really a very miserable creature because of her knowledge that she is no longer a woman in the sense that we understand women.

In the properly selected cases of fibroid tumors we may occasionally overstep the field. I mean this: In women in whom the x-ray or radium is contra-indicated, as a rule, while they are awaiting operation for some reason, it might not be at all out of place to give a small amount of radiation, a small dose, together with the proper associated treatment of transfusion together with iron and arsenic, just to tide over—not enough to destroy the ovarian function but enough to help to control the active symptom which is producing the anemia.

In these cases of fibroid tumor, properly selected and properly treated by radium, not only is the hemorrhage controlled but almost invariably there is noted a remarkable diminution in the size of the uterus.

I remember a case I had coming from Park Ridge, who with one treatment of fifty milligrams for twenty-four hours of radium was cured of her symptom, her hemorrhage. She went abroad immediately. In six months when I examined her tumor, it had diminished by more than half, and when I saw her two years after the first treatment, I could hardly find the fibroid tumor. Her physician had wanted to do a hysterectomy on her.

That is all I wish to add to what has been said. Dr. Schmitz has covered the subject thoroughly and there is little more that one can add except one's own personal experience.

Dr. G. E. Pfahler, Philadelphia: Mr. Chairman, everyone, I'm sure, as I do, certainly learns a great deal whenever Dr. Schmitz presents a paper. He does it in such a masterly fashion. Therefore I am not going to discuss or argue with him, but I do want to ask him questions.

In the first place, I'd like to ask him why he

concludes that infections are a contra-indication to radiation in, let us say, fibroids of the uterus. Since we are (as has been brought out this afternoon) treating carbuncles and boils as most of us have done with brilliant success, why is infection in the pelvis a contra-indication? I have not been treating cases that have infection just because of this recommendation, but I am beginning to wonder why we are not doing it.

In two cases that I recall definitely that had infection associated with uterine fibroid that couldn't be operated upon, they later had a pelvic abscess drained through the vagina with very little inconvenience and that is all there was to it. The fibroid disappeared, both patients are well and free from any symptoms today.

Dr. Beclère of Paris, who about three years ago made a report on about five hundred cases of fibroid in the uterus, didn't mention any contra-indications. He obtained very good results and I think anyone who knows Beclère will accept his work as being very scientific and also very conservative.

I avoid treating large fibroids—that is, fibroids the size of my head; a three months or a two and a half months or three and a half months pregnancy to a radiologist doesn't mean very much because we are not dealing with obstetrical cases and we are not very familiar with just the size of a two and a half months pregnancy, but I do not hesitate a moment to treat a case that has a fibroid the size of a large grapefruit or coconut, and we all know those sizes because we see them at the table.

In the treatment of uterine fibroid I think myself that if you can eliminate malignant disease you get better results with the x-ray than you will with radium, and I can say that rather boldly because I have a gram of radium and am prepared to use radium whenever I want to. I don't think many men are carrying that amount of radium.

I do use radium commonly in these cases because I think in any doubtful case there ought to be a dilation and curettment for diagnostic purposes, and if you do that step in these cases you might as well at the same moment introduce some radium into the uterus and get an additional radium effect from the inside of the uterus and tumor area as well as from the outside, and you have to carry less radiation through the abdomen as a result. It seems to me that is common sense.

But before laying down a rule that no one should be treated during the child bearing period, I just take the liberty to speak of two patients, one sent to me by Dr. John McGlynn on the anniversary of her wedding day for treatment of a fibroid in the uterus. She had been operated upon by Dr. McGlynn for a fibroid of the uterus. He did an exploratory operation. When he got into the abdomen he found she was pregnant and not having permission to remove the uterus and being of the Roman Catholic faith, he simply had to close the abdomen up and leave the uterus.

Following that operation she aborted a monster,

and I am mentioning this case for two reasons: If that patient had any radiation treatment whatever preceding that abortion of the monster, no one in this room and no one in the world would have doubted for a moment that the radiation produced the monster, but in this instance, of course, the patient had no radiation and the monstrosity could not be ascribed to the radiation.

In that case Dr. McGlynn told me just where the fibroid was located, which permitted me to direct my rays accurately. This answers the contraindication for treatment except in cases of hemorrhage. This patient had no hemorrhage, she had a fibroid of the uterus and nothing else. She wanted children. In that case I treated the fibroid of the uterus, protecting the ovarian area. She never stopped menstruation once. At the end of the year so far as we could see the fibroid was gone, we gave permission for intercourse, she promptly became pregnant and since has had two healthy, normal children.

The other case is a patient who came to me at thirty-nine years of age. She was married to her second husband. I mention this because she had never had any children. She came because of a fibroid. A fibroid was the size of a large orange or coconut, approximately. I treated this patient with no thought of preserving her menstrual function. There was nothing else in this case, not even hemorrhage. But the patient wanted to get rid of the fibroid chiefly because it was causing some pressure and severe constipation symptoms.

I treated the patient, produced an amenorrhea, the fibroid progressively decreased and was practically gone at my subsequent examination. Then about a year and a half after amenorrhea, she came in and said, "Doctor, I feel a distension in my abdomen."

I said, "I think that is just constipation."

I did find the uterus somewhat enlarged, but I thought perhaps I had miscounted my previous records. My records indicated that it had been smaller before. I thought perhaps I had just mis-measured.

About two months later the husband wrote me a letter thanking me for what I had accomplished but telling me that I should have been able to recognize that this woman was pregnant. She gave birth to a beautiful, healthy child and three and a half years later (that is, last Fall), the mother brought in a photograph for me to see when she came for me to examine her in the following-up period.

There was not a sign of uterine fibroid. The child was a picture of health, then three and a half years old. The patient had never had any children before this, and after my radiation treatment she became pregnant even before menstruation had been re-established, and has been having her menstruation regularly and is in perfect health following this child birth.

Dr. Olin: How much radiation did you give her?

Dr. Pfahler: I can't answer that. I produced an

amenorrhea. I did it with the x-ray. I didn't use any radium and I am glad I didn't. There was nothing to suggest malignancy. It was purely a fibroid case.

I am raising those questions because I think we want to be very careful not to just lay down a rule. I don't want to treat large fibroids because radium alone will not cure them. You are apt to be drawn into giving too much x-ray treatment through the abdomen. I prefer and always recommend operation if the patient can at all be operated upon. As you know, sometimes a patient will not be operated on and that amounts to a contra-indication.

There is one other question I want to ask Dr. Schmitz. He speaks of the neurotic group as being contra-indicated for radiation treatment. My impression is that that neurotic group is also not a favorable group for operation. Just what is to be done in that group?

Dr. Cantrall, Bloomington: Along the line of psychology more than anything else on this, I want to compliment Dr. Schmitz on his paper and I agree with the doctor, I think it (radiation) is one of the finest things in the world for infection; I know of nothing better for cervicitis than an application of radium.

But on the psychology of this inferiority complex, on premature suppression, there is a psychological question not due to the production of the menopause. It is the way the patient is handled psychologically or the psychological condition of the patient before she is treated. I find that if patients are stable mentally and nervously I can produce the menopause at thirty or thirty-five or thirty-eight and I get very little reaction from it provided that patient is handled properly psychologically.

The suggestion of an inferiority should never be given but the suggestion that it is a natural process, but it is necessary to bring it on a little previously to Nature and that they will be just as healthy and just as well afterwards as they are before, you will have very little trouble by producing premature menopause.

I have one of the happiest women I ever knew who was perfectly normal up to the time of her first menstruation. At that time she began with an eczema over the entire body. She spent many months among your experts in Chicago trying to get relief from her eczema and she was the most miserable woman I ever saw. She came to me about three or four years ago and upon a careful study I came to the conclusion, from the history of the case largely, that it was due to an over-activity of the ovaries and told her that we would have to bring on a premature menopause, at the same time suggesting to her that it would be no harm at all, she'd be just as healthy as she would if it would come on at the natural time which would be about forty years of age.

That artificial menopause was produced by x-ray. Today that woman's skin is as clear and bright and clean as it was before her menstrual periods began

and she is one of the happiest women I ever knew.

I have several other cases which I don't care to take time now to describe, but I have never yet had any trouble in a normal case, but I should be very careful if I had an unstable case nervously or mentally, about producing it.

Dr. G. E. Pfahler, Philadelphia: May I speak one minute? I want to bring out one more point if I may.

About fifteen years ago I reviewed the first seventy-five cases of fibroid of the uterus that I had treated with x-rays and I made an inquiry of every one of these patients as to their sexual life and satisfaction and desires following this radiation treatment. Most of them had more desire and more satisfaction afterwards than before. I ascribed that to their better general health.

I do not believe that with radiation you are modifying that condition very much, if any. I believe probably none at all. That is further illustrated by the fact that the Roentgenologists who have been rendered sterile have in no sense been rendered impotent or lack in any sense sexual satisfaction or desire, and if it affects the men that way it probably affects the women that way, as judged by analogy.

Dr. W. L. Brown, Chicago: I'd like to ask just one question of Dr. Schmitz. In some cases I have treated for fibroid, the tumor has not disappeared entirely. It diminishes in size perhaps fifty, seventy-five or ninety per cent. Have you noted in your experience any of these tumors growing again?

Also, have you noted any fibroid developing in women who have previously been given as much as twelve hundred milligram hours intra-uterine irradiation?

Dr. Schmitz, closing discussion: I wish to thank every one who discussed the paper for the valuable contributions.

I feel that there are exceptions to all rules but that exceptions do not prove or disprove a rule.

My paper is confined to the indications of radiation therapy, including radium and x-ray, in uterine hemorrhages. That was the object and is the reason why I could not go into every phase of the various factors brought out by the discussants.

Dr. Danforth called attention to the limitation of size, the age, and the surgical poor risk and mentioned the exceptions to the rule. We also have treated patients with radium that we could not have treated otherwise. Also in instances where the myoma was present without a hemorrhage but surgically a poor risk. In these cases, usually with large fibroids we used the x-ray in preference to radium.

Dr. Dorland brought out the inferiority complex which develops in women who have been unsexed. We all are familiar with such unhappy patients and should avoid castration if possible. Such complications frequently arise in the neurotic patient. Hence we must be careful with any kind of treatment.

Dr. Pfahler put the question: Why should infections contra-indicate radiation in myomata? Particularly when radiations are very beneficial in infections otherwise. I am not convinced about the benefits radiations may give in infections. Superficial lesions as carbuncles respond. Whether internal, deep seated infections, especially if only dormant, react as safely is doubtful. Therefore we feel that history and signs of a pelvic infection contra-indicate radiation therapy. The gynecologist knows how easily a dormant pelvic infection is reactivated by instrumentation.

Another question asked by Dr. Pfahler was about the fate of the myomata. We know that sixty per cent. of myomatas will practically disappear after radiation treatment and one-third will not. Some will disappear very rapidly, others possibly within eight months or a year. I have seen very, very few cases where the myoma afterwards began to grow again, after an arrest of the catamenia. I do not recollect a single instance where the myoma occurred or reappeared after radiation therapy.

In conclusion, let me reiterate, the object of my paper was to discuss the frequency of uterine hemorrhages; to give a classification based on the underlying causes; and to report the methods of treatment used in these cases according to the indications given.

Society Proceedings

ADAMS COUNTY

The regular monthly meeting of the society, held at the Elks' Club, February 11, 1929. The meeting was called to order at 8:20 with forty-six present.

Dr. Stevenson read case report on "Lateral Sinus Thrombosis with Streptococcemia; Recovery Without Operation." The report was discussed by Drs. Cohen and Jurgens, and finally closed by Dr. Stevenson. The remainder of the scientific program was conducted by the Sangamon County (Illinois) Medical Society, who had accepted an exchange program with us. Dr. Don Deal, of Springfield read an interesting paper on "The Acute Abdomen," which was discussed by Drs. A. H. Bitter, W. H. Baker, Herman H. Cole of Springfield, and closed by Dr. Deal. Dr. L. E. Munson of Springfield read an interesting paper on "Hypertension," which was discussed by Drs. C. A. Wells, Herman Cole of Springfield, Warren Pearce, and Walter Stevenson, and closed by Dr. Munson.

Dr. Center made a motion that we extend a rising vote of thanks to the Springfield physicians for coming to Quincy to address us. This was unanimously carried.

HAROLD SWANBERG, M. D., Secretary.

ALEXANDER COUNTY

The Alexander County Medical Society held its annual meeting in Parlor A of the Halliday Hotel Wednesday evening, December 19th, 1928, with

practically every member present and Doctor James M. Gassoway, the president, presiding.

Officers for 1929 were elected as follows: President, Dr. James W. Dunn; vice-president, Dr. G. H. McNemer; secretary-treasurer, Dr. Phil H. McNemer; member of board of censors to fill vacancy, Dr. B. S. Hutcheson, all of Cairo.

No representatives to the State society were elected as the present delegate and alternate, Drs. R. E. Barrows and James S. Johnson, respectively, hold over.

The report of the retiring secretary-treasurer showed the financial affairs of the society were in good shape, that about 80 per cent of the eligible physicians of the county were members, and that a meeting had been held every month except during the vacation period.

After the close of the business meeting an elegant banquet was served by the hotel. This was presided over by Dr. James M. McManus, of Cairo.

Resolutions of sympathy and regret were passed over the continued illness of Dr. W. F. Grinstead and his absence from the meeting. Dr. Grinstead is a charter member of the society, and this was the first annual meeting that he has ever failed to attend. Besides his regularity in attendance he has also always been constant in other ways in contributing to the success of the society.

Addresses were made following the banquet by Dr. James M. Gassoway, the retiring president; Dr. James W. Dunn, president-elect; Dr. James S. Johnson, the orator of the evening, and others.

The president-elect then appointed the following committee on public health and legislation: Drs. J. E. Woelfle, chairman, James S. Johnson, and O. M. Dickerson.

JAS. W. DUNNE, M. D.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, February 6, 1929.

1. A Rational Viewpoint of Plastic Surgery (illustrated).....Frederick B. Moorehead
Discussion, Ira Frank
2. Some Considerations Concerning Non-Obstructive Anuria (lantern slides).....
.....Edward William White
Discussion—Laurence N. Mayers, N. S. Davis, 3rd.

Joint Meeting Chicago Medical Society and South Side Branch, February 13, 1929

1. Attempts to Stimulate Physiologic Processes by Diathermy—Anton J. Carlson, Head of Department of Physiology, University of Chicago.
Discussion—Gustav Kolisher, A. R. Hollender
D. Kobak
3. Present Views Concerning Calmettes Vaccination Against Tuberculosis with B. C. G.
.....Isaac A. Abt
Discussion—Alexander A. Day

Reception and Joint Meeting, Sigma Xi and Chicago Medical Society, Feb. 20, 1929

6:00 p. m.—Reception to Dr. Ray Lyman Wilbur, President, Leland Stanford University. Dr. H. S. Cumming, Surgeon-General, U. S. Public Health Service.

6:30 p. m.—Dinner, Medical and Dental Arts Club.

8:00 p. m.—Program in Auditorium, Medical and Dental Arts Club. Dr. F. R. Morton—Introduction of presiding officer, Dr. F. R. Moulton, Sigma Xi. Remarks by Surgeon-General H. S. Cumming. Sigma Xi welcome to Dr. Wilbur by Mr. W. B. Storey, president A. T. & S. F. Railroad. Address, "Contribution of the Laboratory to the Progress of Civilization," Dr. Ray Lyman Wilbur.

Moving Picture Films of George Getz East African Hunting Expedition, Feb. 27, 1929

A. R. Metz, Chief Surgeon, Chicago, Milwaukee, St. Paul & Pacific Railway.

DU PAGE COUNTY

January 17, at 6:30 p. m. in the Goodie Shop, Glen Ellyn, the Du Page County Medical society had a banquet and ladies' night at their monthly meeting. A fine meal of several courses was served. All of the Du Page county nurses were guests and the wives of the physicians were also there. Entertainment was afforded by a very clever magician who performed tricks that really baffled every one there. After the banquet dancing and card playing was indulged in.

The results of the election of officers were as follows:

Dr. Bebb of Hinsdale was elected president; Dr. J. H. Raach of Wheaton, vice-president; Dr. W. L. Migely of Naperville, secretary and treasurer.

Marriages

SAM M. BROCK, Chicago, to Miss Julia Sholl of Peoria, Ill., Dec. 22, 1928.

DOMINIC JOSEPH ZERBOLIO, Benld, Ill., to Miss Frances Linard of La Porte, Ind., Dec. 23, 1928.

Personals

Dr. Edward F. Cox has resigned as health officer of Oglesby after many years' service.

The Chicago Orthopedic Club was addressed February 8 by Dr. James P. Simonds on fundamental principles of bone pathology.

The Chicago Pediatric Society held a symposium

sium on empyema, February 19, the speakers being Drs. Phillip Rosenblum, Eugene T. McNery and Ralph B. Bettman.

Dr. Frederick B. Moorehead addressed a public meeting February 3 at the Academy of Sciences in Lincoln Park on plastic surgery illustrated with lantern slides.

The Rock Island County Medical Society, Rock Island, was addressed February 12 by Drs. David J. Davis and Nelson M. Percy, Chicago, on goiter.

The Jackson County Medical Society, Carbondale, was addressed December 20 by Drs. Lionel Sinclair Luton and Flavius G. Pernoud, St. Louis, on diseases of the heart and carcinoma of the breast, respectively.

The Chicago Ophthalmological Society was addressed February 18 at the Medical and Dental Arts Club by Dr. Sanford R. Gifford, Omaha, on "Synthetic Ophthalmia," and Dr. Cyrus W. Rutherford, Iowa City, on complications in cataract extraction.

The St. Clair County Medical Society was addressed February 7 by Dr. John R. Caulk, professor of clinical genito-urinary surgery, Washington University School of Medicine, St. Louis, on "Painless Hematuria."

The Vermilion County Medical Society, Danville, was addressed January 8 by Dr. Dallas B. Phemister, Chicago, on "New Aspects of Bone Infection." Nearly 400 invitations to physicians in surrounding cities were issued for this meeting.

Dr. Isaac D. Rawlings, director of the state department of public health since 1921, resigned February 11 to accept an executive position in the Chicago Department of Health. Dr. Rawlings was for years a member of the Chicago health department and from there went to Springfield as director of the State Department of Health.

News Notes

—The Chicago Gynecological Society was addressed February 15 at the Murphy Memorial Building, 50 East Erie street, by Dr. Joseph E. F. Laibe on common urologic lesions in gynecology, and by George W. Bartelmez, Ph. D., on "Some Factors in the Process of Menstruation."

—At the annual meeting of the Chicago Heart Association at the Chicago Women's Club, February 18, Dr. Rufus B. Crain, medical director, Eastman Kodak Company, Rochester, N. Y., spoke on "Industrial Workshops and Their Importance in Relation to Placing the Handicapped." Dr. Walter W. Hamburger presided at this meeting.

—The alumni week clinical program of Northwestern University Medical School will be held June 13-15. The clinics, which will include operative work, lectures and demonstrations, will be held at Wesley Memorial, St. Luke's, Passavant, Cook County, and Michael Reese hospitals, and at the medical school. A general session will be held in the Murphy Memorial Building, in which prominent out-of-town clinicians have been invited to participate. The general profession is invited to attend.

—The Chicago Surgical Society met at the University Club, February 1; the speakers were Drs. Daniel N. Eisendrath and Robert A. Arens on "Cholecystography and Pyleography as Aids in Differentiation of Biliary and Renal Calculus"; Kellogg Speed, some joint infections in adults, and tumor of the chest wall; John W. Nuzum, "Acute Hemorrhagic Pancreatitis"; Harry E. Mock and Géza De Takáts, "Hyperglycemia Following Head Injuries"; David C. Straus, subcutaneous traumatic rupture of the spleen, and Charles F. Sawyer, "Presentation of an Unusual Case."

—At a meeting of the advisory council of the League for the Prevention of Hay Fever, Dr. Bernard Fantus was elected chairman and Dr. William A. Evans, Dr. Leon Unger, Dr. Siegfried Maurer, Mr. Bernard C. Roloff and Prof. William B. Day members of an executive committee, which is to include, ex-officio, a representative of the city health department and of the Chicago Medical Society. The council will undertake to devise ways and means of organizing a lay society composed of sufferers from hay fever and persons interested in them for the purpose chiefly of eradicating ragweed from the

metropolitan district of Chicago in the hope of minimizing hay fever.

—The third Ochsner Memorial Lecture was given under the auspices of the North Side Branch of the Chicago Medical Society at the Germania Club, Clark street and Germania place, February 21, by Dr. George W. Crile, Cleveland, on "The Physical Nature of Death." Preceding the lecture, a dinner was given in honor of Drs. Malcolm L. Harris, President Elect of the American Medical Association, and Ex-Presidents Arthur Dean Bevan, William Allen Pusey and Frank Billings. President William S. Thayer, Baltimore, members of the Board of Trustees and other officers of the American Medical Association attended.

—The University of Chicago announced, February 4, gifts totaling \$500,000 toward the support of its medical clinics to be made over a five-year period beginning July 1. Messrs. Albert D. Lasker and Max Epstein each pledged \$125,000, and the Julius Rosenwald Fund \$250,000, the latter on condition that the university obtain pledges for a like amount from local sources. The University of Chicago Clinics, opened in October, 1927, are soon to be enlarged by the addition of the new Bobs Roberts Memorial Hospital for Children, a new hospital for crippled children, and the new Chicago Lying-In Hospital, which will make the total capacity 500 beds. It was announced also that Dr. Franklin C. McLean, professor of medicine, has been appointed director of the university clinics.

—The new 225 bed Passavant Memorial Hospital, erected on the McKinlock Campus opposite Northwestern University Medical School, will open about May 1. It is the first hospital to be constructed at the medical center on East Chicago avenue, which is being developed with the medical school as a nucleus. One third of the beds in the Passavant Memorial will be available for university bedside instruction. Nine of the twelve stories will be for patients. The eleventh floor will be devoted to the operating department; the second floor to the laboratories and physical therapy department. For the present the east wing will be set aside for nurses' quarters and the nurses' school, which will be affiliated with Northwestern University. The superintendent of the hospital will be Dr. Irving S. Cutter, dean of the medical school. The

Passavant Memorial Hospital was founded sixty years ago by Dr. W. A. Passavant, who also founded hospitals in Pittsburgh, Milwaukee and Jacksonville, Ill. The Chicago Passavant Hospital was formerly at 149 West Superior street.

A gift of \$150,000 by Mr. Edward B. Harkness to the Neurological Institute of New York; the opening of the outpatient clinics of the Institute at the Medical Center; and the complete transfer in March of all work of this Institute to the Medical Center were simultaneously announced by Mr. Robert Thorne, president of that institution.

The total cost of completing and equipping the new building of the Neurological Institute at the Medical Center is \$1,900,000, of which amount \$300,000 remained to be raised at the time the matter was presented to Mr. Harkness. His gift of \$150,000 leaves a like amount to be given by the American friends of neurology in order that this new building may be placed in operation in the month of March with building and equipment entirely paid for.

Deaths

WILLIAM J. ARNOLD, Chicago; Michigan College of Medicine, Detroit, 1884; a member of Chicago Medical Society and practitioner for many years in Englewood; aged 70; died, February 2; of cerebral embolism.

METELLUS ROWAN BARCLAY, Chicago; University of Maryland School of Medicine, Baltimore, 1889; aged 61; died, Nov. 28, 1928, of chronic myocarditis.

JOHN S. BEAUDRY, Chicago; Bellevue Hospital Medical College, New York, 1887; aged 64; died, January 23, of myocarditis.

ELIZABETH PAULINE WOLF BLITZSTEN, Chicago; Rush Medical College, Chicago, 1923; aged 34; died, January 30, at Rochester, Minn., of hyperthyroidism.

BARNEY HICKS CHAMBERLIN, Chicago; Rush Medical College, 1887; a member of Chicago Medical Society; aged 66; died in Whittier, Cal., February 10, of diabetes and heart disease.

EUGENE G. COVINGTON, Bloomington, Ill.; Howard University Medical Department, Washington, D. C., 1889; died recently.

EDWARD GORDON CROMWELL, Henry, Ill.; Chicago Homeopathic Medical College, 1896; General Medical College, 1904; aged 52; died, December 30, of pneumonia.

OLIVER LEE CROW, Findlay, Ill.; St. Louis College of Physicians and Surgeons, 1903; aged 50; died of mastoid abscess with meningitis, recently.

ELIZABETH HOPKINS DUNN, Chicago; Northwestern University Woman's Medical School, Chicago, 1894; member of the American Association of Anatomists; formerly on the faculty at her alma mater, Rush Medical College, and the University of Chicago; aged 61; died, January 16, at the Billings Memorial Hospital, of carcinoma of the mouth.

EDWARD L. EMERSON, Rock Island; Rush Medical College, 1881; a practitioner over 40 years in New Windsor; a veteran of the Civil War; retired several years; aged 82; died, February 2.

C. GURNEE FELLOWS, Chicago; Hahnemann Medical College and Hospital, Chicago, 1885; member of the American Academy of Ophthalmology and Oto-Laryngology; at one time professor of ophthalmology and otology at his alma mater; formerly on the staff of the Chicago Memorial Hospital; aged 65; died, February 2, of coronary occlusion and arteriosclerosis.

JESSE J. FLY, West Frankfort, Ill.; Nashville (Tenn.) Medical College, 1878; Civil War veteran; aged 82; died, Dec. 24, 1928.

HARVEY A. FOSTER, Monmouth, Ill.; Kansas City (Mo.) Medical College, 1881; member of the Illinois State Medical Society; aged 76; died, January 5, in a local hospital.

I. CLARK GARY, Chicago; Northwestern University Medical School, 1889; aged 70; died, February 5, of organic heart disease.

JOHN H. GORDON, Pocahontas, Ill.; Missouri Medical College, St. Louis, 1875; past president of the Bond County Medical Society; aged 86; died, January 13, of angina pectoris.

JAMES DANIEL HIGGINS, Chicago; Rush Medical College, Chicago, 1893; aged 73; died, January 12, of hemorrhage due to duodenal ulcer.

EDWIN WILLIAM HUNTER, Chicago, Rush Medical College, 1877; aged 73; died suddenly, January 4, of myocarditis.

BENJAMIN GRANT JEFFERIS, Chicago; Kentucky School of Medicine, 1887; Trinity Medical College, Toronto, 1880; aged 78; died, January 20, from a fracture of the femur due to a fall, with bronchopneumonia and chronic nephritis.

EDWIN KIRKPATRICK, Elgin, Ill.; College of Physicians and Surgeons, Baltimore, 1886; aged 75; died, January 5, of heart disease.

ADOLPH C. KLOSTERMANN, Venedy, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1906; aged 48; died, January 20, of pneumonia.

CHARLES KOLLER, Chicago; Bennett Medical College, 1881; aged 69; died, December 27, 1928, of endocarditis.

CHARLES C. KOST, Dixon, Ill.; Missouri Medical College, 1889; aged 61; died, January 30, following a long sickness.

GEORGE NORMAN LUCAS, Brownsville, Texas; College of Physicians and Surgeons, Chicago, 1895; formerly

on the staff of the Elgin (Ill.) State Hospital; aged 68; died, January 25, of heart disease.

JOHN A. MCGAUGHEY, Chicago; Northwestern University Medical School, 1883; a member of Chicago Medical Society; aged 68; died, February 6, at Michael Reese Hospital, of cholecystitis.

I. NEWTON CHARLES MCKINNEY, Camargo, Ill.; University of Illinois College of Medicine, 1902; aged 60; died at Jarmon Hospital, Tuscola, February 7, of diabetes.

JAMES HENRY MOSHER, Prophetstown, Ill.; Long Island College Hospital, Brooklyn, 1867; for twenty-one years president of the school board; aged 88; died, January 6, of pneumonia.

JAMES F. MYERS, Gibson City, Ill.; Rush Medical College, 1883; a former practitioner for many years in Rock Island and president of the Board of Health there; aged 73; died recently.

JACOB JORDAN PARKER, Normal, Ill. (licensed, Illinois, 1878); Civil War veteran; aged 82; died, in January, of heart disease.

EDWARD PATERA, Chicago; Medical Department of the University of Illinois, Chicago, 1903; on the staff of St. Mary of Nazareth Hospital; aged 53; died suddenly, January 21, of spontaneous rupture of the aorta and arteriosclerosis.

WILLIAM PETERSMEYER, Ashton, Ill.; University of Illinois College of Medicine, 1898; aged 57; a member of Illinois State Medical Society; died, January 28, of erysipelas.

JOHN ROBERT PIERCE, Mason, Ill.; Barnes Medical College, St. Louis, 1897; aged 70; died at St. John's Hospital, Springfield, January 25.

GEORGE OVERTON POPE, Latham, Ill.; Michigan College of Medicine, Detroit, 1885; aged 66; died, Nov. 25, 1928, of heart disease.

CHARLES WESLEY PUNTNEY, Carmi, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1893; aged 71; died, Dec. 29, 1928.

GEORGE WILLIAM REIS, Chicago; Harvey Medical College, Chicago, 1904; a member of Chicago Medical Society; aged 58; died, February 7, of lobar pneumonia.

HENRY GORDON TANDY, Chicago; L.R.C.S., L.R.C.P., Edinburgh, 1887; L.F.P.S., Glasgow, 1887; aged 64; died, February 1, of chronic nephritis.

CHARLES A. ULLERICK, Chicago; Rush Medical College, Chicago, 1893; aged 70; died, January 19, of cerebral hemorrhage.

ROBERT J. WALKER, Chicago; Rush Medical College, 1894; a member of Chicago Medical Society; aged 57 years; died, January 9, of myocarditis following influenza.

JOHN GILBERT YOUNG, Hamilton, Ill.; Keokuk Medical College, 1895; aged 57; died, January 20.

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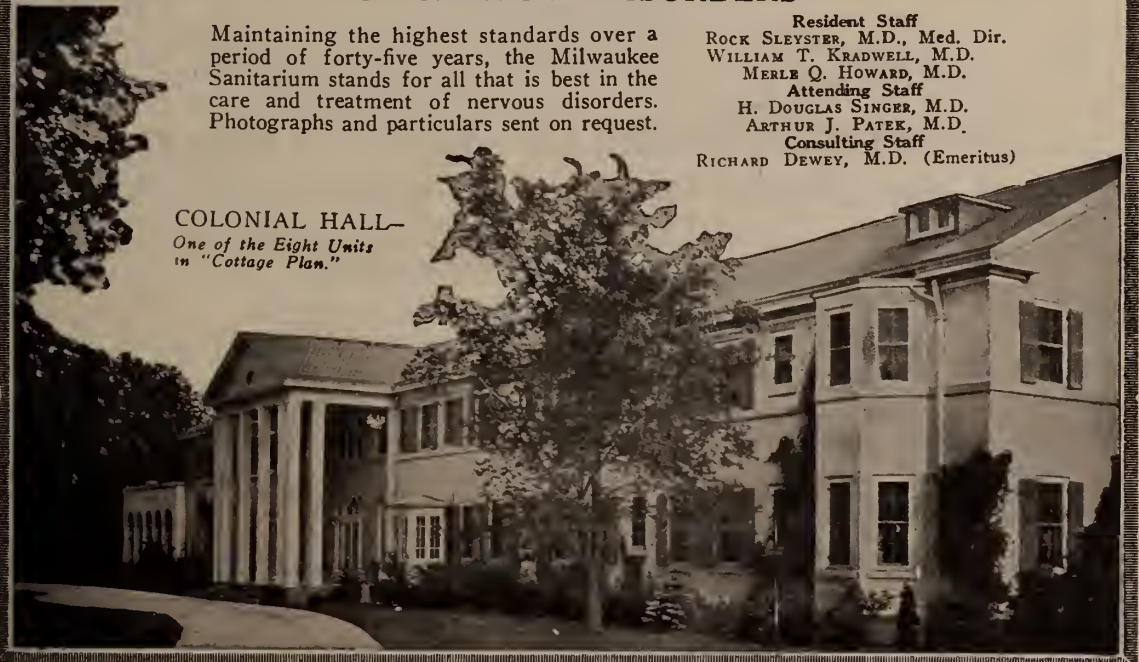
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ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

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VOL. LV

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No. 4

ILLINOIS MEDICAL JOURNAL

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Editorial

WHAT PEORIA IS DOING

The Peoria Medical Society, the Host Society for the 1929 Annual Meeting, is making every effort to make the 1929 Annual Meeting one to be long remembered. For months the many committees have been working and holding regular meetings to consider the many things essential to the conducting of a successful meeting. Under the chairmanship of Rolland Lester Green much work has been done, and the work will continue until the meeting has been brought to a successful close.

The Association of Commerce, through its Convention Secretary, Mr. M. J. Finn, has been co-operating 100%. Mr. Finn has had much experience in arranging and conducting conventions, and has given many valuable suggestions to the committee and officers of the Society. The hotels are arranging to comfortably house the many visitors expected in Peoria during the meeting.

With two large hotels having a capacity of 400 beds each, and with many smaller hotels, there will be ample facilities for all, and you may be sure that you will be well cared for.

Reservations should be made as early as possible, and Dr. W. A. Malcolm, Chairman of the Hotel Committee, Peoria, will see that you get a good reservation. Members of the Society and others intending to be present at the meeting are urged to make their reservations at once.

The Annual President's Dinner will be held at the Pere Marquette Hotel on Wednesday evening, May 22, 1929, at 6:30, and Dr. Clifford U. Collins is in charge of this important function. Tickets are now being sold for this dinner, and every effort will be made to have a larger attendance at the President's Dinner this year than at any previous meeting.

Every physician is entitled to a vacation. Every member of the Illinois State Medical Society should realize that the Annual Meeting is

his own meeting. When we realize that distinguished members of the profession come half way across the continent to appear on the program, it is quite obvious that physicians throughout Illinois should honor them by attending the meeting.

Peoria is doing its best, and it is up to the membership to do the rest,—attend the meeting, in order that the 1929 Annual Meeting will go down in Society History as one of the outstanding meetings of all time.

REDUCED RAILROAD FARES FOR 1929 ANNUAL MEETING

The railroads have granted a reduced rate for the Peoria meeting on the Certificate plan, providing 150 certificates are presented for validation. Every one going to Peoria by rail should ask for a Convention Certificate when purchasing a one-way ticket. When the required number of certificates are obtained, they will be validated by a railroad representative, and an officer of the Society, and the holder will thereby be entitled to a reduction of one-half of the return fare, when purchasing his ticket home at Peoria. There should be no trouble in procuring the required number of certificates, if everyone will remember to ask for the Certificate when purchasing their ticket to Peoria.

INVITED GUESTS AT THE 19TH ANNUAL MEETING

There will be a considerable number of invited guests on the program at the Peoria Meeting May 21, 22, 23, 1929. Among these are the following:

J. Shelton Horsley, Richmond, Virginia. "Oration in Surgery."

Stewart R. Roberts, Atlanta, Georgia. "Oration in Medicine."

M. L. Harris, President-elect, American Medical Association, Chicago. General Address, at open meeting, Tuesday evening, May 21.

R. W. Scott, Cleveland, Ohio. Section on Medicine.

H. O. Mosenthal, New York City. Section on Medicine.

Arthur E. Hertzler, Professor of Surgery, University of Kansas School of Medicine, Halstead, Kansas. Section on Surgery.

Bransford Lewis, Professor of Genito-Urinary Surgery, St. Louis University Medical School, St. Louis. Section on Surgery.

Thomas E. Carmody, Denver, Colorado. Section on Eye, Ear, Nose and Throat.

Derrick T. Vail, Jr., Cincinnati, Ohio. Section on Eye, Ear, Nose and Throat.

Rollin H. Stevens, Detroit, Michigan. Section on Radiology.

W. Walter Wasson, Denver, Colorado. Section on Radiology.

HOTEL RESERVATIONS

Make your hotel reservations early, with Dr. W. A. Malcolm, Chairman of the Reservations Committee, 604 Peoria Life Building.

LEADING PEORIA HOTELS

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Number of Rooms Location and Phone No.	—Single—		—Double—	
	With Bath	Without Bath	With Bath	Without Bath
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Phone 4-2121.	5.00	8.00
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Phone 4-5111.	2.50	3.50
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209 E. Franklin.	to	to	to
Phone 4-1503.	1.25	2.00
New Yale—43 rooms.....	1.50	2.50
Jefferson at Franklin.	and	and	and	and
Phone 4-3120.	2.00	3.00
Harold—42 rooms.....	1.50	2.00
217 Main.	to	to	to
Phone 4-3105.	3.00
Meek's—33 rooms.....75	1.50
316 Fulton.	to	and
Phone 9217.	1.50	2.00

A widely known traveler and author after spending some years in Peoria acquiring inspiration for his works, left a heritage to the city

when, describing the rugged scenery, he said: "Nowhere in the wide world is there to be found such mundane beauty as from the bluffs of Peoria, overlooking the Illinois river."

Rich in romantic lore, this garden spot was as early as two hundred and fifty years ago the site of a French mission and trading post, where contact was had with the powerful tribes of Illinois Indians, and the site of the city of Peoria was chosen and named after one of these tribes.

The general topography is a flat plateau extending from two hundred to five thousand feet

one of the greatest convention cities in the middle west.

Peoria welcomes you and bids you partake of her inspiration and her hospitality.

Peoria is situated near the center of Illinois, on a direct paved highway from St. Louis to Chicago, along the scenic route of the Illinois River Valley. It is easily accessible from every part of the country. In addition to eight paved highways, leading into the city, Peoria is served by fifteen railways, steam and electric, and several motor bus lines. Peoria is an air port on the Chicago-to-Gulf air mail line.

Whether you come to Peoria for a visit or intend to make your home here, you will be impressed with the metropolitan appearance of the city, the hospitality of the people and the ideal living conditions.

Tourists are attracted by scores of interesting points in and around the city. Peoria has five beautiful parks, covering a total of 1,225 acres, many beautiful drives, a score of public playgrounds and four golf courses. Grand View Drive, overlooking Peoria Lake and the beautiful Illinois River Valley is praised by tourists throughout the country.

Peoria's eight miles of river frontage, together with Peoria Lake, affords every form of boating and water sports. In addition to these, there are six enclosed swimming pools and two large modern public pools.

Peoria is the shopping center of down state Illinois. Seven large department stores and many specialty shops, afford every shopping advantage found in larger cities.

The city has exceptional educational advantages, including Bradley College and the Peoria Art Institute. It is noted for its beautiful churches.

Twelve theaters offering a variety of the best productions the year round, several fine clubs and four country clubs afford many forms of recreation.

Greater Peoria has a population of 117,095. One hundred twenty-five major manufacturing plants and 225 smaller ones have invested \$129,000,000.00 in Peoria. These industries have an annual output of \$212,000,000.00 and a pay roll of \$40,000,000.00.

Among the nationally advertised products



Jefferson Hotel

back from the river's shore, when it rises into majestic bluffs from two hundred to four hundred feet high. The hills and dales are wonderfully rich in brooks and woodlands, and occasionally gorgeous canyon and waterfall formations are encountered. Peoria lake, too, affords ample opportunity for every water sport.

With its temperate climate and healthful environs, its wealth of historic lore and great industrial projects, Peoria is keenly sought out by tourists. Vacationists are drawn from far-away points and the sporting season leaves the nimrod fully repaid. Week-end and over-Sunday parties find it a most inviting objective.

With its loyal, friendly spirit, recognized nation-wide, and its superior transportation, housing and assemblage accommodations, Peoria is

manufactured are tractors, washing machines, agricultural implements, furnaces, oil burners, stock feeds, food products, candies, cereals, cigars, steel and wire, cordage, etc.

Peoria leads the world in the production of commercial solvents and ranks first in the manufacture of high priced washing machines, and track laying type of tractors.

Peoria is in the center of a rich agricultural section and its live stock market is the second largest in the United States from the standpoint of motor truck receipts.

Peoria entertained 116 state, national and international conventions during the past year. Among some of the national conventions recently attracted to Peoria, "The Cogential Convention City," were the National American Business Club, National Altrusa Club, American Bowling Congress, the Saengerbund of the Northwest, American Poultry Association, the National D. O. K. K., National Swine Show and many others.

Peoria is just "one sleep" from three-fourths of the total population of the United States. It has splendid hotel accommodations with reasonable rates, with a convention capacity of 7,500.

THE EXHIBITS

According to the usual custom, there will be many Commercial and Scientific Exhibits at the meeting. The Commercial Exhibits will exceed any shown at a previous down-state meeting. These have been carefully selected, and no concern will be allowed to exhibit, which is in any way objectionable.

Everything in the way of up-to-date equipment, supplies, and accessories for every branch of Medicine and Surgery, will be shown. Many pieces of expensive but necessary apparatus will be among the exhibits. Everything used by any practitioner of medicine and its specialties will be found among the displays. It is hoped that every member and visitor at the meeting will spend as much time as possible among the exhibits, and see what these houses are doing in their Laboratories and Research Departments to aid the practitioners.

Many interesting things will be found among the Scientific Exhibits. The American Medical Association will have an unusually interesting Educational Exhibit. The Illinois Department of Public Health will show what the State is doing in its effort to control and stamp out communicable diseases.



Pere Marquette Hotel

Many other individuals and institutions will have interesting Scientific Exhibits which will be of interest to all.

More information concerning these exhibits will be given in the May JOURNAL.

DR. ANDY HALL, THE NEW DIRECTOR OF PUBLIC HEALTH

Dr. Andy Hall of Mt. Vernon was recently appointed by Governor Emmerson, Director of Public Health of the State of Illinois. Dr. Hall has been a member of the council of the Illinois State Medical Society from the ninth district for several years. His appointment assures a splendid ethical regime and a maximum co-operation with the Illinois State Medical Society and all its affiliated organizations. We congratulate the State of Illinois on securing Dr. Hall's services.

Dr. Hall has practiced medicine in Illinois for thirty-eight years. He is the son of Colonel Hiram W. Hall and Julia McLean Hall and was born in Hamilton County. He attended the district country schools, the McLeansboro High School and the northern Illinois Normal School in Dixon and received his medical degree from Northwestern University in 1890.

Dr. Hall served in the Spanish-American war, the Philippine insurrection and the World War. He is married and has three sons all of whom are physicians.

COUNTY MEDICAL SOCIETIES ARE MAKING USE OF THE SCIENTIFIC SERVICE COMMITTEE

The Scientific Service Committee has scheduled the following programs for medical societies:

January 8—Rock Island County—Marshall Davison, "Abdominal Pain."

January 17—Christian County—Quitman U. Newell, "Obstetrics."

February 7—Iroquois County—Charles Morgan McKenna, "Significance of Hematuria."

February 12—Rock Island County—Nelson M. Percy, "Goiter."

February 12—Rock Island County—David John Davis, "Goiter."

February 13—Kankakee County—Jesse Gerstley, "Diarrheas in Children."

February 14—Union County—L. A. Juhnke, "Diagnosis of Uterine Hemorrhage."

March 6—Will-Grundy County—James H. Hutton.

March 7—Iroquois County—L. A. Juhnke, "Diagnosis of Uterine Hemorrhage."

March 7—Sangamon County—Frederick H. Falls, "The Diagnostic Value of X-Ray in Obstetrics."

March 11—Knox County—James G. Carr, "Cardiac Pain."

March 12—Rock Island County—William R. Cubbins, "Intestinal Obstruction."

March 15—Alexander County—George deTarnowsky, "Treatment of Fracture."

April 4—Sangamon County—Carl A. Hedblom, "Differential Diagnosis and Treatment of Acute Abdominal Lesions."

INCREASING AMOUNT OF INTEREST IN THE SUBJECT OF GOOD HEALTH ON THE PART OF THE PUBLIC

SHOWN BY THE WORK OF THE EDUCATIONAL
COMMITTEE FOR JANUARY, FEBRUARY,
MARCH, 1929

Speakers: The Committee secured the co-operation of the Illinois Federation of Women's Clubs, the Chicago Woman's Club, the Woman's City Club, the Woman's Auxiliary to the Chicago Medical Society, the Illinois Congress of Parents and Teachers District One, and the Chicago Woman's Aid in participating in a public meeting on CANCER sponsored by the Chicago Medical Society in January. The speakers for the medical society were Dr. D. J. Davis and Dr. Carl Hedblom. There were about 250 present at the meeting, with about half the attendance being women.

Ninety speakers have been scheduled for public meetings during the three months. Speakers have discussed the Newton Bill, the Sheppard-Towner Act, Vivisection, as well as the usual subjects along the lines of good health. High Schools, mothers' clubs, women's clubs, Parent-Teacher Associations, men's clubs, and churches have all been included in these appointments.

Radio: At the request of the manager of radio station WJJD, broadcasting from the Palmer House, Chicago, a regular series of health talks is being given every Wednesday noon at 12:20. This request came following the talks

which were given during the influenza epidemic in December.

Station WGN is being used every Tuesday noon at 12:00 o'clock.

Twenty radio talks have been given on the following subjects: Health and Happiness, The Home Medicine Chest, Posture and Health, Indigestion, Some Features of Heredity, Mother's Health, Animal Experimentation, Diet in Disease, The Healthy Child, Heart Disease—Its Causes and Prevention, Eye and Ear Affections in Children, Reducing, Arthritis, Tuberculosis, Children and Good Sense.

Letters have been received from Wisconsin, Minnesota, Iowa, Michigan and Illinois concerning these talks.

Posters and Films: Moving picture films have been secured for the Proviso Township High School of Maywood. Posters exhibits have been furnished this High School and the Home Bureau of Saline County for use in connection with a health exposition at Harrisburg.

Newspaper Service: The Southern Illinois and the Jackson County Medical Societies gave a banquet on March 28 in honor of H. C. Mitchell, M. D., and C. D. Gardiner, M. D., who are completing fifty years in the practice of medicine. The Office of the Educational Committee released fifty articles to newspapers in Southern Illinois about this special meeting.

Two editors of newspapers have decided to carry a health column over the signature of the local county medical society. This makes a total of about 90 newspapers using the press material regularly in addition to those using special articles which are released as occasion demands.

Thirty-eight health articles have been written since January 1, all of which have been checked and approved by each member of the Educational Committee. The articles cover the following subjects: Diet and the Teeth, Don't Be a Transmitter, One Source of Eyestrain, Burns, A Damaging Disease, Paresis, Those Resolutions, About Scarlet Fever, Training in Speech, Yeast as a Food and a Medicine, Food Fads, More Food Fads, Heart Disease and Rheumatism, About Neuralgia, Time for Measles, Swat the Fly Early, Men and Automobiles, Food Facts, The Hard of Hearing Child, A Medical Hero, Epidemic Meningitis, Gall Bladder Trouble, Suggested by the Daily Press, Care of the

Premature Infant, Cheering Up the Sick, Some Facts About Cancer, What Do We Inherit?

One thousand one hundred and sixty-eight articles have been released to Illinois newspapers.

Miscellaneous Service: The Cleveland, Ohio, Public Library; The Normal College of Ypsilanti, Michigan; physicians from Wisconsin, Kentucky and Louisiana have all been given assistance during the last few weeks. Samples of health articles, speakers package libraries, and copies of radio talks have all been requested.

The Committee has scheduled speakers for several of the Woman's Auxiliaries, and has assisted in sending out literature, in mimeographing copy, and in outlining programs.

Special material has been collected for physicians scheduled to give talks of an unusual nature.

A representative of the Illinois State Medical Society will be on the program of the Illinois Congress of Parents and Teachers State Meeting at Mattoon, April 18.

THE COURTNEY ANTI-VIVISECTION BILL

The much heralded Courtney Anti-Vivisection Bill is now before the Illinois Legislature. The following is a complete copy of the bill:

56th G. A. SENATE BILL NO. 221 1929

Introduced by Mr. Courtney, by request, March 7, 1929.

Read by title, ordered printed, and referred to the Committee on Judiciary.

A BILL

For an Act to add Section 50a to Division I of "An Act to revise the law in relation to criminal jurisprudence," approved March 27, 1874, as amended.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 1. Section 50a is added to Division I of "An Act to revise the law in relation to criminal jurisprudence," approved March 27, 1874, as amended, to read as follows:

DIVISION I

Sec. 50a. Any person who experiments on the body of a living animal for the purpose of ascertaining or demonstrating any fact in physiology or pathology, or for any other purpose, or any medical college, school or research laboratory, or the directors, trustees, managers, proprietors or employees thereof, who permits such experiments to be conducted in or upon the premises of such institution, or who keeps in captivity, any animal for the purpose of such experiments, or who refuses to permit

any duly constituted officer or authority to make a full inspection of the premises of such institutions at any reasonable time, the time during which classes are held being deemed to be a reasonable time, shall be liable to a fine of five hundred dollars (\$500) or imprisonment in the county jail for not more than one year, or both.

Note—Objections to the Anti-Vivisection Bill were printed in the March issue of the JOURNAL. Many additional reasons may appear to the reader, but the data published in the JOURNAL will serve as an aid to those who desire to file with their senator and representatives reasons why anti-vivisection law should not be placed on the statute books.

REPRESENTATIVE NEWTON TO BE SECRETARY TO PRESIDENT HOOVER

Representative Walter H. Newton of Minnesota, the author of the Newton bill recently abandoned in Congress, and of the present Newton bill to extend the Sheppard-Towner act for a period of five years, has been selected by President Hoover as third secretary. This means that Mr. Newton will be liason officer between the chief executive and the heads of the various independent agencies of the government, such as the veteran's bureau and the shipping board.

Mr. Newton will resign from congress and will enter upon his new duties in the near future. His salary as third secretary will be the same as that which he receives as a member of congress—\$10,000 per year. Mr. Newton is now in a position to spread his so-called welfare ideas in a more effective manner than he was as a representative from the state of Minnesota. We doubt if his appointment is a good omen to the great American public that believes we have over centralized, over paternalized and over bureaucratized the supervision and control of the citizenry and the American home.

MATERNITY BLOC TO BRING PRESSURE ON PRESIDENT HOOVER TO EFFECT EXTENSION OF SHEPPARD-TOWNER ACT

Senator Sheppard and Representative Newton are reported 'as advising the Maternity Bloc to bring pressure to bear upon President Hoover to effect extension of the Sheppard-Towner maternity act that otherwise would end June 30,

1929, according to the promise made by former President Coolidge, and by Congress.

Sheppard has been quoted as saying that the reason that Newton introduced the new bill to extend the maternity act was because it was found impossible to get the other bill out of committee. It is obvious too that the greatest hope of beating the bill in the special session lies in getting the president to keep his hands off and to "let" the Maternity Act die as Coolidge and Congress agreed, on June 30, 1929.

The maternity bloc realizes the advantage of *not* having a bill introduced in the senate and in having it come into the senate only after passage in the house as that avoids premature senate consideration, debate or hearings. It is understood that the maternity bloc though one of its main levers is declaring that the women must at once get after the president, stating that it will hardly be possible to get any action at the special session unless the president allies himself with them, and also the Budget. There is talk of approaching Mr. Hoover through the American Child Health Association of which he is president. Representative Newton is already an appointee of Mr. Hoover. Sheppard, so it is understood, will hardly introduce a companion bill in the senate at the special session to extend the maternity act as by the senate agreement he is bound not to do this. There are, however, plenty of other senators not so obliged who will undoubtedly take pleasure in thus gaining the limelight, if only for a brief time.

THE ILLINOIS STATE MEDICAL SOCIETY HAS OPPOSED ALL LEGISLATION OF THE SHEPPARD-TOWNER AND NEWTON BILL TYPES

At a meeting of the council of the Illinois State Medical Society, March 11, 1929, the following resolution was unanimously approved:

WHEREAS: Bills have been recently introduced in our Federal Congress at Washington to continue in some form of government aid and supervision over maternity and infant welfare in our various states, and

WHEREAS: The Illinois State Medical Society has repeatedly opposed such forms of legislation, whether requiring or not requiring a

matching of the government appropriations by the various states, and

WHEREAS: These bills in each instance have placed the supervision of such federal controlled or federal supervised proposals in the hands of the Children's Bureau of the Department of Labor, and

WHEREAS: At a recent hearing on the Newton Bill before the committee in Washington, the Illinois State Medical Society was represented by the chairman of the council who spoke in opposition to the bill, and

WHEREAS: Prominent members of other medical societies were present and appeared as proponents of the bill, therefore be it

Resolved, that the Illinois State Medical Society, through its council in assembly this eleventh day of March, 1929, again go on record as opposing legislation of this type, which has been opposed by the American Medical Association, and be it further

Resolved, that the secretary be instructed to send a copy of this action to the secretary of all state medical societies or associations which are component societies of the American Medical Association and also to the director of the Bureau of Legal Medicine of the American Medical Association, Doctor William C. Woodward, who also appeared at the hearing in Washington and so admirably led in the opposition of the Newton Bill.

Our society has opposed all legislation of the Sheppard-Towner and Newton Bill types and at the hearing held recently in Washington we were represented by the chairman of our council, Doctor William D. Chapman, who appeared as an opponent to the Newton Bill.

We believe that much credit is due to the executive secretary of the Bureau of Legal Medicine of the American Medical Association, Doctor William C. Woodward, who in his usual diplomatic and thorough manner met the arguments advanced by the proponents of the bill.

It is the opinion of our society that medical problems should be met by those who have had a thorough medical training and should not be in any way supervised by laymen.

H. M. CAMP,

Secretary, Illinois State Medical Society.

PARENTS AND TEACHERS SUMMER ROUND UP

One of the important projects of the Illinois Congress of Parents and Teachers is the Summer Round-Up. The purpose of this movement is to attempt to correct all remedial physical defects in children of pre-school age, so that they may enter upon the school period free from physical handicaps.

This project is of great concern to the medical profession of Illinois. The Illinois Congress of Parents and Teachers is now suggesting that local Associations conduct this campaign in cooperation with the local medical society, with the examinations or inspections being given by the family physician in the privacy of his own offices.

The Educational Committee of the Illinois State Medical Society urges the cooperation of the County Societies with the representatives of the Parent Teacher Associations in making plans for satisfactory methods and arrangements for the Summer Round-Up, and recommends that County Societies be cordial but firm in holding local Associations to the suggestion of their state Congress that inspection may be made at the office of the family physician.

THE LEGISLATIVE SITUATION AT SPRINGFIELD

The Legislature has at last shown some indication of getting down to work and in all probability 80 per cent of the legislation that will be successful this year will be enacted within the next six weeks. There is an indication on the part of many of the leaders to hasten the important legislation at this time, then dispose of the necessary appropriation bills and adjourn. There is some talk that this can be done not later than June 1, which, of course, will be a step in the right direction.

Three months have now elapsed since the opening of the 56th General Assembly and very little has been accomplished. However, the Legislative Digest discloses the fact that up to date there have been over 300 Senate Bills introduced and over 500 House Bills. Many of them are not worth the paper they are printed on. Of this large number of proposed acts three bills have been enacted into laws. Namely, House Bill No. 2, introduced by Mr. Schnackenberg on

January 9, which was an emergency for Cook County. Briefly it is as follows:

"In Counties of over 500,000 the County Clerk shall extend on each valuation of property the total of the taxes extended on such property, and the taxes collected are to be divided among levying bodies in proportion to rates levied."

This bill was approved by the Governor on February 18. House Bill No. 48 increased the tax rate for County Tuberculosis Sanitaria from one mill to one and one-half mills on the dollar. This bill was introduced January 23 by Mr. Green and approved by the Governor March 6. This apparently was also an emergency so that certain counties could get the measure before their people on the April ballot.

House Bill No. 74 was an appropriation to the widow of the deceased elected member of the 58th General Assembly. These three measures are the only ones that were enacted in law and published in the last issue of the Legislative Digest. However, since that time the gas tax has become a law. Of these three bills only one of them was of major importance, House Bill No. 2.

Up to this time, however, three additional Senate bills and one House bill has been passed and are awaiting the Governor's decision. Of the Senate bills, one was introduced by Mr. Kessinger regarding the purchase of community buildings, Senate Bill No. 85 was the gasoline bill referred to.

Senate Bill No. 138 is a tax bill introduced by Mr. Barr, validating equalizations of assessments made by the Tax Commission, etc. The only House Bill having passed the General Assembly and awaiting the Governor's approval is No. 58, introduced by Mr. Schnackenberg as an emergency and was a tax measure.

It would rather appear that the 56th General Assembly has labored for three months, having made three new laws and passed four others. This, of course, indicates that there is a good deal of conversation and that the legislative pot will commence to boil more actively in the near future. There are between twenty-five and thirty measures now being considered that are of more or less interest to physicians. The Legislative Committee of the Illinois State Medical Society is watching the situation and although no bills of major importance derogatory

to public health have been offered, nevertheless the usual cult bills are going along with their campaigns of letter writing and active lobbying in the Legislative Hall.

Our congenial friend, Dr. Percy Lemon Clark, who introduces the Sanitology bill every session, is very much in evidence with a corps of workers not only active in the Legislative Halls but calling on the Legislators in their homes. Very frequently he talks over the radio in Chicago in the interest of this bill and arousing a curious group of sympathizers in their movement. They are using the mails freely and the Chairman of the Legislative Committee has been shown a number of letters sent to Legislators who are asking them to support the bill. Many letters are from people who do not know the danger of legalizing a dietitian, so-called, to treat disease. This was very aptly shown when a man of some prominence in Chicago wrote a letter which said, "I do not understand what the bill is that Dr. Clark has introduced but I sincerely trust that you will vote for it."

The anti-vivisectionists had Mr. George Arlis, the famous English tragedian, and his wife come to Springfield in the interest of their bill. A public reception was held for him last Sunday night which 700 attended. Among this number were quite a number of physicians and their wives who did not know the purpose of the meeting. However, there were no speeches regarding the bill but a great deal of propaganda was going on through the audience by anti-vivisectionists. Mr. and Mrs. Arlis called on the Governor the next day in the interest of the bill.

It is conceded by even the proponents of the bill that there is no possibility of its passage this year but they are building the foundation for future sessions, wearing down, as it were, the resistance, bit by bit, until they have attained their aim, if possible. The situation is not a great deal unlike the osteopathic situation in Ohio at the present time. The House of Representatives in that state passed a bill the other day to allow osteopaths to give drugs and medicine and even would legalize the examination to be given by an osteopath.

We feel confident that the Ohio physicians will be able to stop a measure of that sort in the Senate, although it has gone so far that they will have to concede some privileges which the osteo-

paths should not have and probably the best they will be able to do is to have the examination given by a medical man, instead of an osteopath. It is quite apparent that the osteopaths will gain their objective, that is, prescribing medicines by virtue of the proposed law.

The chiropractors are simply flooding the Legislature with their letters from grateful patients. They change leaders every year, which necessitates the loss of several months before they know their way around, legislatively speaking. The bill comes up for hearing before the Efficiency and Economy Committee within a short time. A member of the Legislative Committee will be at the meeting and present the Society's viewpoint of this very unnecessary law.

No date has been set for the hearing on the bill which was introduced to prevent corporations from practicing medicine.

The Legislative Committee wishes to acknowledge the fine spirit of co-operation throughout the State and especially in Cook County. The doctors have seen their Legislators when requested to do so by the Chairman. With such continued co-operation it is safe to predict that no bills inimical to the public health will be passed in the present session of the Legislature.

J. R. NEAL, M. D.,
Chairman Legislative Committee.

AUXILIARY NEWS

A short time ago I sent out questionnaires to all county presidents, with reference to the work the Auxiliaries are doing. Many favorable replies have been received.

We are very anxious to have a good attendance at the annual meeting in May. Can't we have more organized counties by that time?

Through the kindness of the Peoria Medical Society, the ladies are being entertained at a luncheon on Wednesday, May 22, at the Jefferson Hotel at 1:00 P. M.

The Auxiliary business meeting will be held in the Peoria Medical Society rooms at 341 Jefferson Building, at 10:00 A. M.

Mrs. T. O. Freeman of Mattoon, Illinois, is publicity chairman. If you have any news at any time, kindly send it to her to be published in the ILLINOIS MEDICAL JOURNAL.

Further particulars of the Auxiliary meeting

in May will be given in next month's issue of the JOURNAL.

MRS. G. HENRY MUNDT,
President.

A WEEK OF PHYSICAL THERAPY IN LOS ANGELES

The Eleventh Annual Session of the Western School of Physical Therapy will be held at the Alexandria Hotel, Los Angeles, Cal., June 17 to 20, under the direction of Dr. Burton B. Grover and staff of instructors.

Following the session of the School, the Pacific Physiotherapy Association will hold its Annual Meeting at the Alexandria, presenting an excellent program by men of national reputation. These two events will provide the outstanding conferences in Physical Therapy on the Pacific Coast this season, and a cordial invitation is extended to the medical profession, and especially those members who are interested in the progress of physical therapy, to attend these important sessions.

Full information and programs may be obtained by addressing Dr. Chas. Wood Fassett, Hotel Glendale, Glendale, Cal.

SUMMER CLINICS, CHICAGO MEDICAL SOCIETY

The Chicago Medical Society will conduct a two weeks' summer clinic at the Cook County Hospital from June 17 to 29 inclusive. A fee of ten dollars will be charged to those registering and attendance at these special clinics will be restricted to registrants.

Two clinics will be held daily in medicine and surgery and their specialties and will be followed by ward walks.

It is planned to have six evening meetings to be addressed by specialists in such subjects as heart disease, tuberculosis, obstetrics, physiotherapy, gastro-intestinal disorders and possibly diabetes. Definite selection of subjects and speakers will be announced soon. Physicians desiring to register for these clinics are urged to send in their reservations as soon as possible to the Summer Clinics Committee of the Chicago Medical Society, 185 N. Wabash Ave., Chicago, Illinois.

Further details will appear in next month's JOURNAL.

ILLINOIS STATE MEDICAL SOCIETY

SEVENTY-NINTH ANNUAL MEETING,

PEORIA, ILLINOIS,

May 21, 22, 23, 1929

OFFICERS

President.....John E. Tuite, Rockford
 President-elect....F. O. Frederickson, Chicago
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 Second Vice-President..E. P. Coleman, Canton
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SECTION ON SURGERY

Earl D. Wise, *Chairman*.....Champaign
 Frank L. Brown, *Secretary*.....Chicago

SECTION ON EYE, EAR, NOSE AND THROAT

George F. Suker, *Chairman*.....Chicago
 Walter Stevenson, *Secretary*.....Quincy

SECTION ON PUBLIC HEALTH AND HYGIENE

E. W. Mosley, *Chairman*.....Chicago
 John J. McShane, *Secretary*.....Springfield

SECTION ON RADIOLOGY

E. G. C. Williams, *Chairman*.....Danville
 I. S. Trostler, *Secretary*.....Chicago

'SECRETARIES' CONFERENCE

W. J. Benner, *President*.....Anna
 W. H. Smith, *Vice-President*.....Benton
 I. L. Foulon, *Secretary*.....East St. Louis

COMMITTEE ON ARRANGEMENTS

Rolland Lester Green, *General chairman*. Peoria
 C. W. Magaret, *Secretary*.....Peoria
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 W. A. Malcolm.....Peoria
 C. U. Collins.....Peoria
 John Vonachen.....Peoria
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 P. B. Goodwin.....Peoria

W. C. Williams.....	Peoria
George Parker	Peoria
Joel Eastman	Peoria
S. H. Easton.....	Peoria
E. S. Gillespie.....	Peoria
George Michell	Peoria
E. P. Coleman.....	Canton

LADIES' ENTERTAINMENT

Tuesday, May 21, 1929

Tour of city, starting from Pere Marquette Hotel at 1:30 P. M.

Garden Tea at residence of Mrs. F. G. Morrill.

Dinner Bridge at Pere Marquette Hotel at 7:00 P. M.

Wednesday, May 22, 1929

Women's Auxiliary business meeting at Peoria Medical Society Rooms, 341 Jefferson Building at 10:00 A. M.

Luncheon at Jefferson Hotel, 1:00 P. M.

General Chairman, Mrs. Arthur Sprenger.

Chairmen of Committees

State Social Committee, Mrs. R. L. Green.

Garden Tea Committee, Mrs. F. G. Morrill.

Dinner Committee, Mrs. Robert Hanna.

Bridge Committee, Mrs. John Vonachen.

Registration Committee, Mrs. A. A. Crooks.

Reception Committee, Mrs. B. L. Adelsberger.

Luncheon Committee, Mrs. Jos. Duane.

Transportation Committee, Mrs. Clarence Fisher.

It is hoped that many of the ladies will be present at this meeting. Since the organization of the Women's Auxiliary two years ago there has been a greater incentive for the ladies attending the annual meetings of the Illinois State Medical Society and the attendance this year should be greater than ever before.

"THE STAG"

After the opening meeting, Tuesday evening, May 21, the Peoria Medical Society will have a "Stag" Smoker and Buffet Lunch in the Ball room of the Pere Marquette Hotel. The Peoria Society has not announced the nature of the program, but we are assured that it will be "well worth while."

MEETINGS OF THE HOUSE OF DELEGATES

Wednesday Afternoon, May 22, 1929

3:00 P. M.—Meeting called to order by the President, John E. Tuite, for reports of officers,

committees and other business to come before the house.

Thursday Morning, May 23, 1929

8:30 A. M.—Meeting called to order by the President for election of officers, committees, delegates to the American Medical Association meeting, report of resolutions committee and other business to come before the house.

SECRETARIES' CONFERENCES

Tuesday Morning, May 21, 1929

W. J. Benner, *President*, Anna.

W. H. Smith, *Vice-President*, Benton.

I. L. Foulon, *Secretary*, East St. Louis.

10:00 A. M.—1. The County Society and Medical Organizations, Chas. S. Skaggs, East St. Louis.

2. The County Medical Society, Andy Hall, Councilor, Ninth District, Mt. Vernon.

(A complete program will appear in the May number of the ILLINOIS MEDICAL JOURNAL.)

GENERAL SESSIONS

Tuesday Evening, May 21, 1929

Ball Room, Pere Marquette Hotel

7:30 P. M.—Meeting called to order by the President, John E. Tuite. Invocation, C. C. Carpenter, D. D., Pastor, Central Christian Church, Peoria. Address of Welcome, Mayor of Peoria. Address of Welcome, A. L. Sprenger, President, Peoria Medical Society. Report of Chairman, Committee on Arrangements, Rolland Lester Green, Peoria. Address, Malcolm L. Harris, President-elect, American Medical Association, Chicago. "Periodic Health Examinations."

This meeting is open to the public.

Wednesday Afternoon, May 22, 1929

2:00 P. M.—Oration in Surgery: "The Mimicry of the Symptoms of Peptic Ulcer." J. Shelton Horsley, Richmond, Virginia.

Wednesday Evening, May 22, 1929

7:30 P. M.—President's Address, John E. Tuite, President, Illinois State Medical Society, Rockford, Illinois.

8:00 P. M.—Oration in Medicine, "The Thyroid Heart," Stewart R. Roberts, Atlanta, Georgia.

Thursday Afternoon, May 23, 1929

1:30 P. M.—Induction of the President-elect, F. O. Fredrickson, Chicago.

1:45 P. M.—Report of the House of Delegates.

SECTION PROGRAMS
SECTION ON MEDICINE

N. S. Davis, Ill., *Chairman*.

Frank Deneen, *Secretary*.

Tuesday Afternoon, May 21, 1929

2:00 P. M.—The A. B. C. of the Electrocardiogram, Emmet Keating, Chicago.

Discussion opened by McCoy and Bain.

2:30 P. M.—Diagnosis in Borderline Tuberculosis Cases, George T. Palmer, Springfield.

2:50 P. M.—Ketogenic Diets in Epilepsy, A. M. P. Saunders, Chicago.

Discussion opened by W. R. Reed, Chicago, and John Favill, Chicago.

3:15 P. M.—Coronary Disease, R. Wesley Scott, Cleveland, Ohio (by invitation).

Discussion opened by J. P. Herrick, Chicago.

4:15 P. M.—Relation of Asthma to Broncho-Pulmonary Infections and Inflammations, S. M. Feinberg, Chicago.

Discussion opened by Cecil Jack, Decatur.

4:45 P. M.—Dermatological Aspects of Early Syphilis, Cleveland J. White, Chicago.

Discussion opened by W. B. Wakefield, Peoria, and I. H. Neece, Decatur.

Wednesday Morning, May 22, 1929

9:00 A. M.—Sodium Chloride and Its Effects on Blood Pressure, Robert S. Berghoff and A. S. Geraci, Chicago.

9:20 A. M.—Hypertension, S. E. Munson, Springfield.

9:40 A. M.—Hypertension, A. I. Kendall, Chicago.

10:00 A. M.—Hypertension, Hermon O. Mosenthal, New York (by invitation).

11:00 A. M.—Discussion of these papers opened by Charles A. Elliott, Chicago.

11:30 A. M.—The Clinical Significance of Intestinal Fermentation, L. D. Snorf, Chicago.

Wednesday Afternoon, May 22, 1929

3:00 P. M.—Joint meeting with Section on Surgery. Symposium on Obstetrics.

1. Heart Disease in Pregnancy, Phil Daly, Chicago.

2. Toxemias in Pregnancy, Fred Falls, Chicago.

3. Surgical Obstetrics, Charles E. Paddock, Chicago.

4. Ectopic Pregnancy, Edward Allen, Chicago.

General discussion on Obstetrical Papers.

Thursday Morning, May 23, 1929

9:00 A. M.—Chairman's Address, N. S. Davis III, Chicago.

9:30 A. M.—Projectile Vomiting in Infants by Radiation of the Upper Chest Region, Orville Barbour, Peoria.

Discussion opened by Dr. Carlson, Chicago.

9:50 A. M.—Use of Orange Juice in Infant Feeding, King G. Woodward, Rockford.

10:30 A. M.—Discussion opened by Gerald Cline, Bloomington.

Appendicitis in Children Under Fourteen Years of Age, R. E. Cummings, Chicago.

10:30 A. M.—Discussion of the above papers.

11:00 A. M.—Lead Poisoning—with Analysis of Employees of an Enameling Plant, Warren Pearce, Quincy.

Discussion opened by R. A. Harris, Quincy.

11:30 A. M.—Election of Section on Medicine Officers for 1930.

SECTION ON SURGERY

Earl D. Wise, *Chairman*.

Frank L. Brown, *Secretary*.

Tuesday Afternoon, May 21, 1929

1:00 P. M.—The Management of Lesions Peculiar to Diabetics, George L. Apelbach, Chicago.

Discussion opened by N. J. Carter, Mattoon.

1:30 P. M.—Exophthalmic Goiter, E. P. Sloan, Bloomington.

Discussion opened by E. C. Roos, Decatur.

2:00 P. M.—Necessary Abdominal and Pelvic Operations During Pregnancy, J. P. Greenhill, Chicago.

Discussion opened by O. H. Crist, Danville.

2:30 P. M.—Acute Osteomyelitis of the Spine," Charles L. Patton, Springfield.

Discussion opened by W. Stuart Wood, Decatur.

3:00 P. M.—Some Fundamental Factors in the Pathology of the Gastro-Intestinal Tract," Arthur E. Hertzler, Professor of Surgery, University of Kansas School of Medicine, Halstead, Kansas (by invitation).

4:00 P. M.—Fractures of the Hip, Edward H. Ochsner, Chicago.

Discussion opened by Hugh E. Cooper, Peoria.

4:30 P. M.—Electric Burns and Their Treatment, Hart E. Fisher, Chicago.

Discussion opened by C. F. Newcomb, Champaign.

5:00 P. M.—Exstrophy of the Bladder, with a report of a case, Thomas S. Robertson, Chicago.

Discussion opened by E. P. Sloan, Bloomington.

Wednesday Morning, May 22, 1929

8:00 A. M.—A Closed Aseptic and Quick Method of Gastro-Intestinal Anastomosis, A. V. Partipilo, Chicago.

Discussion opened by C. U. Collins, Peoria.

8:30 A. M.—Rectal Operations—Their Systemic Effect, P. F. James, Peoria.

Discussion opened by Charles J. Drucek, Chicago.

9:00 A. M.—Osteomyelitis—Acute Infections (with illustrations), John R. Harger, Chicago.

Discussion opened by C. George Appelle, Champaign.

9:30 A. M.—Value of Blood Transfusions in Acute Septicemia, Ralph A. Kordenat, Chicago.

Discussion opened by L. T. Gregory, Urbana.

10:00 A. M.—Idiopathic Peritonitis, Dr. Gatewood, Chicago.

Discussion opened by E. P. Coleman, Canton.

10:30 A. M.—Hydronephrosis (with illustrations), Vincent J. O'Connor, Chicago.

Discussion opened by I. H. Neece, Decatur.

11:00 A. M.—Movable Kidney: Its Reality—Its Menace to Health—Its Curability, Bransford Lewis, Professor Genito-Urinary Surgery, St. Louis University School of Medicine, St. Louis, Missouri (by invitation).

Wednesday Afternoon, May 22, 1929

3:00-6:00 P. M.—Joint meeting with Section on Medicine. Symposium on Obstetrics.

1. Surgical Obstetrics, Charles E. Paddock, Chicago.

2. Ectopic Pregnancy, Edward Allen, Chicago.

3. General discussion on these subjects.

SECTION ON EYE, EAR, NOSE AND THROAT

George F. Suker, *Chairman*.

Walter Stevenson, *Secretary*.

Tuesday Afternoon, May 21, 1929.

Jefferson Hotel

INSTRUCTION PROGRAM

First Conference—1:00-2:30 P. M.

Course 1—Tuning Fork Tests, Practical Applications and Interpretations, John Theobald, Chicago.

Course 2—Pathology of Complications of Cataract Extractions. (Lantern demonstrations). C. F. Yerger, Chicago.

Course 3—Treatment of Nasal Fractures (Recent and Old), Samuel Salinger, Chicago.

Course 4—Facoerisis, Demonstration of Technique, etc., William A. Fisher, Chicago.

Course 5—Pathologic Conditions of Ear, Nose and Throat: Practical Applications, Joseph C. Beck, Chicago.

Second Conference—2:45-4:15 P. M.

Course 6—The New Ophthalmic Patient, Harry S. Gradle, Chicago.

Course 7—Intranasal Surgery, Edwin McGinnis, Chicago.

Course 8—Differential Diagnosis of the Various Forms of Incipient Cataract, Slit Lamp Demonstrations, Robert Von Der Heydt, Chicago.

Course 9—Limitations of Physical Therapy in Otolaryngology, Frank Novak, Chicago.

Course 10—Surgery of the Eye Muscles, Harry W. Woodruff, Joliet.

SCIENTIFIC PROGRAM

Wednesday, May 22, 1929

Jefferson Hotel

1. Modification of the Present Operation for Deflection of the Nasal Septum, Charles F. Burkhardt, Effingham.

Discussion opened by Harold R. Watkins, Bloomington.

2. Pemphigus Vulgaris Pharyngeus, Herbert E. Taylor, Chicago.

Discussion opened by Oscar C. Breitenbach, Waukegan.

3. History and Pathology of the Zonula (illustrated), Ramon Castroviejo, Chicago.

Discussion opened by Harry S. Gradle, Chicago.

4. Senile Cataract Technique, William A. Fisher, Chicago.

Discussion opened by Carson K. Gabriel, Quincy.

5. Artificial Appliances in Ear, Nose and Throat Practice, Joseph C. Beck, Chicago.

Discussion opened by Louis Ostrom, Rock Island.

6. Observations on the Complications of Cataract Extraction, Charles F. Yerger, Chicago.

Discussion opened by Carroll B. Welton, Peoria.

Discussion opened by Robert H. Buck, Chicago.

7. Pathology of Hernias Following Cataract Operations (Illustrated), Oscar B. Nugent, Chicago.

Discussion opened by Robert H. Buck, Chicago.

8. The Evolution of the Management of the Sinus Problem, Thomas E. Carmody, Denver, Colorado. (By invitation.)

9. Intraocular Tension and the Internist, J. H. Roth, Kankakee.

Discussion opened by A. L. Adams, Jacksonville.

10. Remarks on the Clinical Method of Post Graduate Instruction, Thomas D. Allen, Chicago.

Discussion opened by Austin A. Hayden, Chicago.

11. Gradenigo's Syndrome, George H. Woodruff, Joliet.

Discussion opened by Frank H. Alloway, Champaign.

12. The Oculo-Glandular Form of Tularaemia, Derrick T. Vail, Jr., Cincinnati, Ohio. (By invitation.)

13. Obscure Ear Diseases in the First Year of Life. (Relation to intestinal intoxication.) Pathological and Clinical Report from Children's Memorial Hospital, Chicago, M. H. Cottle, Chicago.

Discussion opened by George W. Boot, Chicago.

14. Cancer in Ear, Nose and Throat Practice, George W. Boot, Chicago.

Discussion opened by Joseph C. Beck, Chicago.

15. Prophylaxis and Early Treatment of Laryngeal Tuberculosis, Irving I. Muskat, Chicago.

Discussion opened by R. W. Dunham, Ottawa, and Samuel Salinger, Chicago.

16. Treatment of Chronic Suppurative Maxillary Sinusitis, O. J. Nothenberg, Chicago.

Discussion opened by Grover C. Otrich, Belleville, and Burton Haseltine, Chicago.

17. Clinical Experiences with the Nasal Accessory Sinuses, C. Hopkins Long, Chicago.

Discussion opened by Edwin McGinnis, Chicago.

18. Surgical Diathermy of Tumors About the Head, Thomas C. Galloway, Evanston.

Discussion opened by Frank F. Novak, Jr., Chicago.

19. The Relation of Suppurative Sinusitis to Suppurative Otitis Media, Edward N. Schoolman, Chicago.

Discussion opened by Joseph Duane, Peoria.

20. The Determination of the Pathogenic Tonsil (Report of a New Biologic Method), M. Reese Guttman, Chicago.

Discussion opened by I. Pilot, Chicago.

The Annual Banquet of the Section on Eye, Ear, Nose and Throat will be held in the Gold Room of the Jefferson Hotel, Tuesday Evening, May 21, 1929. Reservations should be made through Dr. Wright Williams, Peoria, Illinois.

SECTION OF PUBLIC HEALTH AND HYGIENE

E. W. Mosley, *Chairman*.

John J. McShane, *Secretary*.

Tuesday Afternoon, May 21, 1929, 2:00 P. M.

1. The Laboratory in Relation to Preventive Medicine, D. J. Davis, Dean, University of Illinois, School of Medicine, Chicago.

2. Vaccines, Joseph F. Biehn, Chicago.

3. Co-operation of the Health Department with the Practicing Physician, Arnold H. Kegel, Commissioner of Health, Chicago.

4. Place of the Practicing Physician in School Hygiene, Ethel R. Harrington, Illinois Department of Health, Springfield.

5. Prevention and Treatment of Measles, Archibald Hoyne, Chicago.

6. Undulant Fever, Lloyd Arnold, Chicago.

Wednesday Morning, May 22, 1929

7. Control of Mosquitoes in the Prevention of Malaria, Mr. Anselmo Dappert, Illinois Department of Public Health, Springfield.

8. Certain Factors Influencing the Mental Health of College Students, J. Howard Beard, University Health Officer, Urbana.

9. Sanitary Conditions of the Illinois River, F. W. Mohlman, Chief Chemist, Sanitary District, Chicago.

10. Administrative Control of Communicable Diseases, Don Griswold, Assistant Health

Commissioner, Lansing, Michigan. (By invitation.)

11. Scarlet Fever, Gladys Dick, Chicago.
12. Food Infections, Gottfried Koehler, Chicago.
13. Control of Diphtheria, Arlington Ailes, Health Commissioner, LaSalle.

SECTION ON RADIOLOGY

E. G. C. Williams, *Chairman*.

I. S. Trostler, *Secretary*.

1. Roentgenotherapy in Dermatology, Rollin H. Stevens, Detroit, Michigan. (By invitation.)
2. Broncho-Sinusitis Disease and Incipient Pulmonary Tuberculosis—The Differential Diagnosis, W. Walter Wasson, Denver, Colorado. (By invitation.)
3. The Nasal Accessory Sinuses, Carroll E. Cook, Chicago.
4. Radium and Radon in Malignant and Benign Diseases of the Skin and Mucous Membranes of the Mouth, Frank E. Simpson and R. E. Flesher, Chicago.
5. The Pre-Radium Treatment of Cervical Cancer, Harold Swanberg, Quincy.
6. A New Serum Test for Diagnosis of Cancer, Benjamin F. Gruskin, Chicago.
7. Common Roentgen Findings in Children's Chests, Henry W. Grote, Bloomington.
8. The Woman's Bill of Rights, E. G. C. Williams, Danville.
9. A Clinical Report of 19 Cases of Fractured Transverse Processes Producing Renal Symptoms, I. S. Trostler, Chicago.
10. Backache — Roentgenologically Considered, Maximilian J. Hubeny, Chicago.
11. X-Ray Observations on Congenital Synostosis at the Elbow, Edwin S. Blaine, Chicago.
12. Histo-Pathological Examinations as a Guide to Radiation Therapy, Roswell T. Pettit, Ottawa.
13. Hirtz Compass Localization of Foreign Bodies of the Head, H. C. Kariher, Champaign.
14. Radiation Therapy of Non-Malignant Pathology, Henry A. Chapin, Jacksonville.
15. Cancer of the Duodenum—Report of a Case, James S. Archibald, Decatur.
16. Radium Emanation (Radon) Technique in Cancer and Other Conditions, Harry B. Magee, Peoria.

EXHIBITORS AT THE 79th ANNUAL MEETING

- Abbott Laboratories, North Chicago, Illinois.
 Acme-International X-Ray Company, 711 West Lake Street, Chicago, Illinois.
 A. S. Aloe Company, 1819 Olive Street, St. Louis, Mo.
 George W. Brady Company, 809-811 South Western Avenue, Chicago, Illinois.
 Borchardt's Malt Extract Company, 217 North Lincoln Street, Chicago, Illinois.
 The Cutter Laboratory, Berkeley, California.
 Ciba Company, Inc., Cedar and Washington Streets, New York City.
 Cameron's Surgical Specialty Company, 666 West Division Street, Chicago, Illinois.
 DeVilbiss Company, Toledo, Ohio.
 De Puy Manufacturing Company, Warsaw, Indiana.
 Deshell Laboratories, Inc., 536 Lake Shore Drive, Chicago, Illinois.
 H. G. Fischer and Company, 2323-2337 Wabansia Avenue, Chicago.
 G. F. Harvey Company, 205 North Adams Street, Peoria, Illinois.
 Horlick's Malted Milk Corporation, Racine, Wisconsin.
 Hanovia Chemical and Manufacturing Company Chestnut and N. J. R. R. Avenue, Newark, New Jersey.
 Hettinger Brothers, 315 North 10th Street, St. Louis, Mo.
 The Kellogg Company, Battle Creek, Michigan.
 The Kelley-Koett Company, Covington, Kentucky.
 Mead-Johnson Company Evansville, Indiana.
 McMaster and De Kroyft, Peoria, Illinois.
 C. V. Mosby Company, St. Louis, Mo.
 V. Mueller and Company, 408 South Honore Street, Chicago, Illinois.
 Mellins Food Company, 177 State Street, Boston, Mass.
 Moores-Ross, Inc., Columbus, Ohio.
 Medical Protective Company, 35 East Wacker Drive, Chicago, Illinois.
 Orchard Hill Camp, St. Charles, Illinois.
 Chas. H. Phillips Chemical Company, 117 Hudson Street, New York City.
 Sharp and Smith, 65 East Lake Street, Chicago, Illinois.
 Swan-Myers Company, Indianapolis, Indiana.
 Sutliff and Case Company, Peoria, Illinois.
 Sanborn Company, Cambridge, Mass.
 W. B. Saunders Company, 7th and Locust Streets, Philadelphia, Pa.
 Victor X-Ray Corporation, 2012 Jackson Blvd., Chicago, Illinois.
 White-Haines Optical Company, Columbus, Ohio.
 Zimmer Manufacturing Company, Warsaw, Indiana.

NOTES ON EXHIBITS

The A. S. Aloe Company will endeavor to show the very latest in surgical and physio-therapy equipment. New tonsillectomy outfits and hydraulic chairs will be shown. This company has a complete line of surgical and electrical equipment as well as complete lines of office furniture, equipment and accessories.

The Abbott Laboratories will exhibit their specialties at the meeting. This company is one of the largest producers of Ephedrine Hydrochloride and Ephedrine Sulphate in this country and will show a complete line of these preparations in powders, tablets, solutions, jellies, inhalents and elixirs. The chemists and research workers of the Abbott Laboratories have produced many products which will be on display. Among these are Butyn, Butesin and Butesin Picrate, Neonol, Methaphen Amidoxy Benzoate, Calsoma, Calcilact, Calcium-O-Iodoxy Benzoate, Cinchopyrine, Bismarsen and many others, including the D. R. L. line. All in attendance at the meeting will be well repaid for their visit to the Abbott Booth.

Cameron's Surgical Specialty Company will display their complete line at Booth No. 74. Too few physicians realize the vast improvement in practice made possibly by adequate light. One of the greatest difficulties in diagnosis and surgery is light deficiency. The physician and surgeon can never get enough. Perhaps the best evidence of this is the great number of operating lamp fixtures, many of which are clumsy and hot, in the hospitals and offices of today. Cameron's Boilable lamps and instruments efficiently reveal the field of diagnosis or operation in all of its detail and in its actual color and condition by giving you clean, cool, concentrated white light at your finger tips in all of your work. That is why you will be interested in having a complete demonstration of Cameron's Electro-diagnostic and Operating Equipment on display at their booth.

Ciba Company, Inc., New York City, will exhibit their well known pharmaceutical specialties at the meeting in Peoria. The leading preparations are DIGIFOLINE, "CIBA," DIAL, "CIBA," CIBALGINE, "CIBA," CORAMINE, "CIBA," LIPIODINE, "CIBA," SISTOMENSIN, "CIBA," AGOMENSIN, "CIBA," ATOQUINOL, "CIBA" and COAGULIN, "CIBA." Their high reputation is based on the painstaking research work done in the "CIBA" pharmacological laboratories.

The Cutter Laboratory of Berkeley, California, will exhibit a display of Test Sets and Treatment Sets for the diagnosis and treatment of seasonal hay fever, Special High Count Pertussis Vaccine for the treatment of whooping cough and for prophylactic use in exposed children. Toxivi, an extract of the poison ivy plant, administered intramuscularly for the treatment and prevention of rhus dermatitis (poison ivy). Mr. D. H. McMaster of their Chicago branch will be in charge of the exhibit and

will have an assortment of literature covering different biological products, as well as a large supply of self hardening scarifiers, a handy instrument for small pox vaccinations and pollen testing. The latter will be distributed free of charge to any physicians desiring the same.

The Devilbiss Company of Toledo, Ohio, will display Devilbiss Nose and Throat sprays, Nebulizers, Steam Vaporizers, Physicians' and Dental Heater Sets, both in nickel plate and chromium plate. These will be exhibited in Booth Number 5 and all physicians will be given the opportunity to examine these accessories.

DePuy has designed and manufactured splints and fracture appliances for thirty-four years. This time has been spent to aid the profession and relieve humanity by building modern equipment. DePuy aluminum splints meet the approval of radiographers and surgeons over the entire world. You are cordially invited to visit the DePuy Booth, Number 25, and see the new Abduction Leg Splint and Forearm Extension Splint used in compound fractures of the radius and ulna. Something different. The display will be in charge of Mr. W. D. Bates, the Illinois representatives of the company.

The Deshell Laboratories will exhibit their well known product, "PETROLAGAR." Many gastroenterologists are using Petrolagar as an enema, either as a useful vehicle for the medication of the lower bowel or diluted with water and used as a non-irritating cleanser. Samples will be available for physicians or a generous supply will be mailed to your hospital, charges prepaid. Representatives of the company will be present to tell more of this well known product and the different varieties of Petrolagar that are now available.

H. G. Fischer and Company, Inc., will exhibit some entirely new developments in the field of physical therapy. These pieces of apparatus as well as certain new accessories are the result of many years of close adherence to the idea of producing only such material for the physicians as has been entirely approved and found usable in every sense of the word. Chief among these exhibits will be a new, fully efficient but low priced Twin Carbon Arc Lamp. They will also show two splendid new Diathermy Machines, one in cabinet form and one portable. Their new 1929 Low Voltage and Wave Current Generator is of marvelous simplicity and yet making available all of the fifteen usable voltage currents. You are respectfully urged to visit this booth and consult with the Fischer representatives.

In Booth Number 24 the Hanovia Chemical and Manufacturing Company of Newark, New Jersey, will exhibit the Alpine Sun and Kromayer Quartz Lamps which are used by more than 150,000 professional men. This wide acceptance by the medical profession stamps Hanovia equipment as an important influence in the science of light therapy and in the manufacture of apparatus for that purpose. They were the original Ultra-violet Lamps.

The Sollux Radiant Heat Lamps will also be exhibited, which have unique adaptions to them for producing heat for therapeutic purposes. A cordial welcome is extended to the members attending and it is hoped that all will take the opportunity to visit this display.

Hettinger Brothers of St. Louis will occupy Booth Number 69. This well known company having furnished dental and surgical supplies for many years will exhibit an assortment of various surgical instruments and Carbon Arc Lamps. It will be to the advantage of everyone attending this meeting to inspect the many articles in the display.

Doctors who are interested in a coffee which may be used in normal as well as in special diets are invited to visit the Kellogg Company Booth in the Technical Exhibits in connection with this meeting. This company will exhibit and demonstrate Kaffee Hag as well as other Kellogg products. Kaffee Hag Coffee is real coffee from which about 97 per cent. of the caffeine has been removed. Visitors at the booth will be served with this delicious caffeine free and All-Bran Muffins. Pamphlets containing diet suggestions and other literature dealing with the relation of food and health will be distributed.

McMaster and DeKroyft, the well known Peoria Master Pharmacists, will exhibit a large line of Pharmaceuticals, Instruments and Office Equipment which will be of interest to all in attendance at this meeting. This company, which dates back to 1860, is always anxious to fill the wants of the medical profession to which they have catered for so many years.

In Booth Number 8 the Medical Protective Company will be represented by Mr. M. L. Allen of the Peoria office. Consider him at your service, whether to answer any questions on professional protection or render any other service which will help to make this meeting a memorable one.

"SIMILAC," a complete modification of cow's milk, is exhibited in space Number 4 by the Moores and Ross Dietetic Laboratories of Columbus, Ohio. This product is something new in the way of a modified milk for both supplemental and complimentary feedings and visitors are invited to ask for information as to how SIMILAC approximates breast milk.

The C. V. Mosby Company will exhibit its complete line of medical and surgical volumes. Included in the display will be the famous "New Books in Medicine." Among the new volumes that will be displayed are Steindler "Diseases and Deformities of the Spine and Thorax," Minor "Clinical Proctology," Leriche "Physiology of the Bone" and Moore "The Tonsils and Adenoids and Their Diseases."

The name "PHILLIPS" identifies the original milk of magnesia and it should be remembered because it symbolizes unvarying excellence and uniformity in quality. The merit of "PHILLIPS" milk of magnesia as an ideal laxative ant-acid is well

established. For more than a half century it has had the endorsement of the medical profession. Phillips Milk of Magnesia, Phillips Dental Magnesia, a superior tooth paste based on Phillips Milk of Magnesia, and Phillips Phospho-muriate of Quinine Compound will be on display at the exhibit. An invitation is extended to all present at this meeting to call and inspect these products.

Swan-Myers Ephedrine products and Swan-Myers Pollen Extracts will be featured at Booth Number 9. The background will consist of a map of China showing the source of Ephedra. A bale of the crude drug will be shown. Physicians will have an opportunity to try Swan-Myers Ephedrine Inhalent Number 66. Samples of this popular product will also be available for distribution. A motion picture, "The Story of Hay Fever Pollens," illustrating the research and factory processes as well as the administration of pollen extracts will be shown daily at the booth.

Simplified METABOLISM equipment which give reliable data for diagnosis. Another feature—manufacturer to user—result, lowest priced equipment in the market. This is a good time to see the new features that the Sanborn Grafic has and to see it in actual operation too. Besides Metabolism, stop and learn about the new and approved Sanborn ELECTROCARDIOGRAF portable and transportable models, the least expensive and the best. Owners—your experiences are welcomed. Right this way—new friends and old—to say "HELLO" at Booth Number Thirty-three.

In a paper read at a meeting of the Council on Medical Education in Chicago, Dr. Ray Lyman Wilbur, Secretary of the Interior said, "If a physician should stop reading medical literature for three years he would not be able to understand articles in the current magazines."

In keeping with this thought W. B. Saunders Company, Medical book publishers of Philadelphia and London are constantly issuing new books on virtually every subject of interest to those practicing medicine. Recent publications which are attracting unusual attention at this Company's exhibit are: Blumer's "Bedside Diagnosis," Babcock's "Surgery," Bethea's "Clinical Medicine," McLester's "Diet and Nutrition," Cecil's "Medicine," Graves "Gynecology," Stevens' "Therapeutics," Ewing's "Neoplastic Diseases," Garrison's "History of Medicine," the publications from the Mayo Clinic and Mayo Foundation, Cabot's "Facts on the Heart" and Wechsler's "Neurology."

The exhibits of the Victor X-Ray Corporation will consist mostly of Physical Therapy Apparatus. This will include their Vario-Frequency Diathermy apparatus, Wantz Multiple Wave-Generator, Galvanic Controller, their complete line of Air and Water Cooled Ultra-Violet Quartz Lamps and a new device for radiant heat therapy, the Victor Thermospectral Lamp, with interchangeable infrared and incandescent units. It is anticipated that

the daily demonstration of the Victor Electrocardiograph will be an outstanding feature as it has at other meetings. Trained representatives will cheerfully assist you in solving your technical problems involving their Physical-Therapy or X-Ray apparatus.

Acme-International X-Ray Company will exhibit their well known Precision "Six-Sixty Plus" Coronaless X-Ray Generator with remote 60 point Auto Transformer Control and Micro-Timer, Horizontal Motor Driven Stereograph, Model 5 Horizontal Radio-Graphic-Fluoroscopic Bucky Table, Model IV Diathermy Machine, Portable Diathermy Machine and various Models of Ultra-Violet Generators. A complete line of X-Ray and Physical Therapy Accessories and supplies will also be shown and will include Bullitt's Mastoid Apparatus, Ghrist Head Rest, Lead Rubber Aprons, Gloves, etc. Acme Barium meal, a new opaque medium with extraordinary suspension qualities, deserves special mention and should receive the consideration of all X-Ray users. The exhibit will be in charge of Mr. A. W. Parkin, Chicago City Sales Manager, assisted by a staff of technically trained men who will gladly discuss the daily problems confronting the users of X-Ray and Physical Therapy apparatus.

The Booth of the White-Haines Optical Company features the new Orthogon ophthalmic lenses. These lenses, the latest triumph of Optical Science, permit the wearer to see the image just as sharply through the edges as through the center. In this way they eliminate the injurious strain caused by blurred marginal vision. The White-Haines Optical Company also features the Soft-Lite Glare-Free lenses, Clover Xylonite Frames, the Clingswell Rimless, and the Crown White Gold Frame. In addition to these items Blue Ribbon Prescription Service is featured. This White-Haines service has a sturdy reputation throughout Illinois. Mr. Joe Kiln, manager of the White-Haines Springfield House and Mr. Donald Hunter, their Illinois representative are in charge of this interesting Booth.

No argument is needed to emphasize the advantage to the physician of a thorough knowledge of any product that he deems worthy of frequent or only occasional use in the work of his profession. This is the thought that prompts the Mellins Food Company to have an exhibit and the purpose is to give physicians an opportunity to acquire full and complete information relative to the source, nature and amount of food elements present in Mellin's Food and to discuss the many conditions where Mellin's Food may be used to the advantage of the patient and satisfaction of the medical attendant.

The V. Mueller and Company exhibit will include an unusually complete display of surgical instruments for the general surgeon as well as the eye, ear, nose and throat specialist, urologist, the

obstetrician and the gynecologist. Of particular interest among the special equipment items will be the "AUDIOMETER," the latest type Beck-Mueller Ether Vapor and Suction Machine, the new model Operay Multibeam Surgical Light, a line of eye magnets and also a line of bone surgery engines and accessories.

Sutliff and Case Company, Inc., of Peoria, a firm whose service to the profession dates back from 1883 will occupy Booth Number 67 with a well chosen display, featuring from among their own specialties with literature and professional samples, THIOCYAN-ELIX, a preparation for the treatment of arterial hypertension. SOLU-CAPS TIN OXIDE COMPOUND internal treatment for furunculosis. KOLAGOG marketed since 1907 as a true chologogue. SOLU-CAPS CINCHOPHEN HYDRIODIDE COMPOUND, a Cinchophen-Iodine Compound containing 16% iodine, analgesic and antiarthritic. A representative presentation of Becton, Dickinson Company and Bauer and Black goods will be shown. Members and visitors are cordially invited to call and inspect the laboratories only a few blocks away.

Zimmer Fracture Equipment, including Aluminum X-Ray Splints, Fracture Beds, Extension and Suspension Apparatus, etc., will be exhibited in Booth Number 1 at the meeting. Dr. Lytle, who represents Zimmer Company in Illinois, will be in charge, and is anxious to greet his many friends among the physicians. Dr. Lytle will consider it a privilege to point out the many interesting features of the Zimmer line. We suggest that you especially ask to see the recent additions which are being enthusiastically received.

Sharp and Smith, the old established Chicago House who supply the physicians, surgeons and hospitals with no small part of their surgical supplies will exhibit in Booths Number 91, 93, 95 and 97. The list of items that can be found on display will be a complete line of surgical instruments, instruments for bone surgery, our "SANDS" giant Cautery, both our Orthochromatic and Binocular Headlights, our B-R-X knives, Pitkin's Spinalthetia Outfit including Pitkin's Tiltometer and many other items too numerous to mention.

The Orchard Hill Camp, situated on the beautiful Fox River just north of the St. Charles Country Club, is an exclusive camp for the younger children. The eight weeks' season opens June 29th. It is interesting to note that practically half the children in camp last year were the sons and daughters of physicians who evidently appreciate the best for their own children. The camp is under the personal direction of Dr. R. J. Lambert and Dr. Edith B. Lowry. No physician who is interested in the welfare of children should fail to visit this exhibit in Booth Number 10.

WANTED: BACK NUMBERS OF THE ILLINOIS MEDICAL JOURNAL

Bratislava (Czechoslovakia)
February 2, 1929.

M. Netousek,
Professor of the University,
Editor of Bratislava Medical Journal.

To the Editor: A fire damaged our library and many precious medical journals were destroyed. We have no funds with which to buy new journals. The thought occurred to me that perhaps you will be willing as so many American journal publishers have been to supply the library with the missing numbers. We desire back numbers of the journal as follows:

- Vol. 43: 1-4, 1923.
- Vol. 44: No. 5, 1923.
- Vol. 45; Nos. 2-6, 1924.
- Vol. 46; Nos. 1-6, 1924.
- Vol. 47; Nos. 1-6, 1925
- Vol. 48; Nos. 1-3, 1925.
- Vol. 50; Nos. 1-6, 1926.
- Vol. 51; No. 1, 1927.

Library of the Medical Faculty,
J. M. Netousek, M.D.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL
DESIRES TRANSACTION OF THE ILLINOIS STATE
MEDICAL SOCIETY AS FOLLOWS:

1st—22nd, 1850-1872.

BUREAU OF SCIENCE LIBRARY, MANILA, PHILIPPINE ISLANDS, DESIRES BACK NUMBERS OF
THE ILLINOIS MEDICAL JOURNAL

The Bureau of Science Library, Department of Agricultural and Natural Resources, Manila, Philippine Islands, desires back numbers of the Journal as follows:

- Vol. 25, No. 1, 2, 1914.
- Vol. 26, No. 5, 1914.
- Vol. 27, No. 1, 1915.

NOTE: Inasmuch as back numbers of the Journal will in all likelihood come from several sources we request that the volumes be forwarded directly to the editor, 185 N. Wabash Avenue, Chicago, where the collection can be checked to see that the order has been fully taken care of.

DR. I. CLARK GARY IS ALIVE!

I wish to apologize to Dr. I. Clark Gary for the notice of his death which appeared in the March issue of the ILLINOIS MEDICAL JOURNAL.

As Mark Twain said under similar circumstances, the report of Dr. Gary's death was greatly exaggerated. Such errors as this at times creep into the publication of a journal of this type.

I am delighted to know that Dr. Gary is alive, well and actively in charge of the Peoples Hospital at 22nd Street and Archer Avenue.

HENRY G. OHLS,
Managing Editor, ILLINOIS MEDICAL JOURNAL.

MEDICAL ADVERTISING SOLICITOR WANTED

The ILLINOIS MEDICAL JOURNAL desires one or more advertising solicitors, preferably with medical advertising experience. No guaranteed salary. Compensation on commission basis only.

ILLINOIS MEDICAL JOURNAL,
185 N. Wabash Ave.

THE ILLINOIS LABORATORY ASSOCIATION

The Illinois Medical Laboratory Association will hold their Annual Meeting on May 21, in Peoria.

PRELIMINARY PROGRAM

10:00 A. M.—Scientific Papers.
12:30 P. M.—Luncheon, followed by Election of Officers.

2:00 P. M.—Joint Session with Section on Public Health and Hygiene, The Laboratory in Relation to Preventive Medicine, D. J. Davis, Dean, University of Illinois, College of Medicine, Chicago.

CORPORATIONS CANNOT PRACTICE MEDICINE IN NEW YORK STATE

The John H. Woodbury Dermatological Institute was convicted of unlawfully advertising to practice medicine and a fine of one hundred dollars imposed by the Court of Special Sessions of the first division of the city of New York, January 2, 1908. From that conviction there was an appeal to the Appellate Division of the Supreme Court of New York, which affirmed that conviction in quite a long opinion, which is published in 124 App. Div. Reports, Supreme Court of New York, 877.

The upper or highest court in New York is their Court of Appeals and there was an appeal

taken to that court by the defendant. The judgment of conviction was affirmed and the opinion is in 192 N. Y. 454.

The following is the decision in full:

THE PEOPLE OF THE STATE OF NEW YORK, RESPONDENT, VS. JOHN H. WOODBURY DERMATOLOGICAL INSTITUTE, APPELLANT, 192 N. Y. 454, DECIDED SEPTEMBER 29, 1908

WILLARD BARTLETT, J. The statute now in force which regulates the practice of medicine in this state provides that "any person not a registered physician who shall advertise to practice medicine, shall be guilty of a misdemeanor." (Laws of 1907, chap. 344, § 15.)

The district attorney of the county of New York laid an information before the Court of Special Sessions accusing the defendant of the crime of unlawfully advertising to practice medicine in violation of this prohibition. The defendant was convicted upon proof sufficient to establish the fact that it had so advertised. It was contended before the trial court, however, and it is contended here, that a corporation is not chargeable with liability under the statute because the word "a person," as used therein, cannot properly be held to apply to a corporation at all, but is exclusively applicable to an individual human being. The prosecution answered this proposition by reference to the Statutory Construction Law (Laws of 1892, chap. 677, sec. 5) which provides that "The term person includes a corporation and joint stock association." The defendant replied that the provision quoted from section 5 of the Statutory Construction Law is qualified by the limitation contained in section 1 of the same act, which declares that the chapter is "applicable to every statute unless its general object, or the context of the language construed, or other provisions of law indicate that a different meaning or application was intended from that required to be given by this chapter." The argument of the defendant is that the context in the general act of 1907 regulating the practice of medicine which contains the prohibition against advertising to practice medicine by any person not a registered physician indicates conclusively that "any person" therein mentioned could not possibly have been intended to mean "any corporation." The Court of Special Sessions, however, and the Appellate Division (with one dissenting judge) reached a contrary conclusion, holding that **artificial persons as well as natural persons fell within the prohibition of the statute.** Mr. Justice Ingraham, who wrote one of the opinions for the majority of the Appellate Division, called attention to the fact that the provision in the Statutory Construction Law to the effect that the term person includes a corporation, was taken from section 718 of the Penal Code and section 955 of the Code of Criminal Procedure which were repealed by section 37 of the Statutory Construction Law itself. This substitution and repeal seemed to him clearly indicative of the intention of the legis-

lature to make the provision of the Statutory Construction Law applicable to all cases in which a corporation had committed an act which by law was made a criminal offense if committed by a natural person.

The only difficulty involved in the adoption of this view grows out of the existence of hospitals, dispensaries and similar corporate institutions which are unquestionably authorized by law to practice medicine—although of course only through the agency of natural persons who are duly registered as physicians. The defendant was incorporated under the act of Feb. 17, 1848 (L. 1848, ch. 40), to authorize the formation of corporations for manufacturing, mining, mechanical or chemical purposes, and the objects for which it was formed were stated in the certificate of incorporation as follows: "The carrying on of business of manufacturing chemical preparations and printing, publishing and selling books and pamphlets relating to the same and advertising same." There could be no suggestion or pretense that this was a hospital corporation or dispensary. In reference, however, to hospitals and dispensaries it could hardly have been the intention of the legislature in the act of 1907 to prohibit such corporations from advertising to do what they might do lawfully—that is to say, from advertising to practice medicine; yet it is argued that if we hold that the act of 1907 makes it a misdemeanor for any corporation (making the term "person" embrace a corporation) to advertise to practice medicine, we must also hold that incorporated hospitals and dispensaries fall within the prohibition. If this were the necessary result of the construction adopted in the courts below I think it would furnish a strong reason for rejecting that construction. It seems to me, however, that we can affirm this judgment without in any wise denying the lawful right of hospitals, dispensaries and similar corporate institutions to advertise their readiness to exercise their lawful functions; and this simply for the reason that the general medical law of 1907, is obviously not intended to apply to the case of such corporations at all. In other words, the prohibitions therein contained against the practice of medicine without lawful registration in this state or in violation of any of the provisions of the statute or against advertising by any person not a registered physician were not intended to apply and plainly could not reasonably be held to apply to corporate bodies which by the express provisions of other statutes are authorized to carry on the practice of medicine upon compliance with their provisions and without registration.

The incorporation of hospitals is provided for in section 80 of the Membership Corporations Law (L. 1895, ch. 559, as amended by L. 1900, ch. 404). Five or more persons may become a corporation for the purpose of erecting, establishing or maintaining "a hospital, infirmary, dispensary, or home for invalids, aged, or indigent persons," by making the prescribed certificate and obtaining the written approval of the state board of charities and a justice of the Supreme

Court of the district in which the principal office or place of business of the corporation is to be located. The statute expressly provides that "the systems of medical practice or treatment to be used or applied in such hospitals, infirmary, dispensary or home" may be specified in the certificate. Thus, a hospital duly incorporated under the Membership Corporation Law unquestionably holds itself out as being able to diagnose, treat, operate and prescribe for human disease, pain, injury, deformity or physical condition; and such corporations do in fact offer and undertake publicly and frequently through the agency of advertisements to diagnose, treat, operate and prescribe for such diseases. An institution of this character, possessing legislative authority to practice medicine by means of its staff of registered physicians and surgeons, comes under the direct sanction of the law in so doing, and by the plainest implication under well-settled rules of statutory construction relating to enactments dealing with the same general subject matter are excepted from the operation of the act of 1907 under which the defendant was convicted.

It is suggested in behalf of the appellant that to attribute to the legislature a design to prohibit a corporation which is not registered as a physician from advertising to practice medicine is to charge the lawmakers with doing an absurd act, inasmuch as it is impossible under the law for a corporation to register as a physician. There is nothing in this point. It might just as well be urged that there is no need of a law prohibiting a minor from voting since everybody knows that a minor has no legal right to vote. This fact does not prevent illegal attempts on the part of minors to exercise the right of suffrage, and the **facts in the present case show that a corporation may undertake to practice medicine without authority of law.**

Believing, as I do, that the construction of section 15 of chapter 344 of the Laws of 1907 adopted by the courts below may be sustained without affecting the rights of incorporated hospitals or dispensaries, I think the judgment of conviction was correct and should be affirmed.

CULLEN, Ch. J., GRAY, HAIGHT, WERNER, HISCOCK and CHASE, JJ., concur.

Judgment of conviction affirmed.

Note and comment: In Illinois in 1923 and again in 1925 we attempted to have the law passed prohibiting corporations from practicing medicine in this State. At each attempt we were beaten because of the influence brought to bear by a certain corporation that has been engaged for several years in the practice of medicine in the State.

In Illinois there is a statute which prohibits corporations from practicing law, yet the law makers of the State seemed unwilling to give to

the medical profession similar protection granted the legal fraternity.

SPECIAL TRAIN SERVICE FROM CHICAGO TO PORTLAND, ORE.

*American Medical Association Annual Meeting
July 8-12, 1929*

In addition to several special trains and special car parties for state and local medical societies, the Chicago & North Western Ry.-Union Pacific System will operate special sleeping cars account of the Portland Meeting on the popular Portland Limited, leaving Chicago 10:00 p. m. daily, arriving Portland at 4:00 p. m. the third day, also on the Continental Limited leaving Chicago 2:30 p. m. daily, arriving Portland at 8:30 a. m. the third day.

Both of these famous trains operate over the only double tracked line between Chicago and Omaha, protected by automatic train control, thence over the Overland Route of the Union Pacific System, through Cheyenne, Pocatello and Boise, for 200 miles along the beautiful Columbia River.

Equipment includes the finest all-steel drawing room, compartment open section sleeping cars, dining cars, and observation cars, with barber, bath, valet and maid service.

Reservations and detailed information regarding fares, routes and points of interest may be secured from Mr. H. G. Van Winkle, General Agent, C. & N. W. Ry. Co., 148 S. Clark St., Chicago.

Correspondence

McLEAN COUNTY HAS SET A GOOD EXAMPLE IN THE WORK OF INFANT WELFARE

SPRINGFIELD, ILLINOIS

March 13, 1929

To the Editor: Believing this letter would be of interest and benefit to other counties in the Fifth Councilor District, I am asking its publication in the ILLINOIS MEDICAL JOURNAL.

This is a splendid example of what can be accomplished by the County Society in collaboration and the assistance of the Division of Child Hygiene of the State Department of Public Health in working harmoniously together. Now that McLean County has set this good example in the work of Infant Welfare, we are hoping they will lead this district in the accomplishment of the examination of the pre-school child.

S. E. MUNSON, M. D.,
Councilor Fifth District.

McLEAN COUNTY MEDICAL SOCIETY,
BLOOMINGTON, ILL.

About two years ago, the State Department of Health placed a nurse in McLean County. She was to work under the direction of the County Medical Society, in promoting breast feeding. An advisory committee of three was appointed by the president to represent the Society.

This nurse called upon every member of the local society and asked for cooperation in this demonstration. Most of the members received her kindly, a few showed but little interest and a very few stated that they were opposed to this kind of work. Now after a period of two years the State Department has withdrawn the nurse from McLean County, and the committee felt that some expression relative to this work should be sent to the Department.

We believe that the work of this nurse has been of decided value to the mothers of McLean County. It has proved to the profession that most mothers can nurse their babies if proper supervision is given and the supply of milk may be materially increased by nurses who have been trained in this work. Campaigns of this kind will greatly aid in combating the propaganda of such laws as the Sheppard-Towner Bill.

The committee wishes to express its appreciation of the work done for this county by the State Department and to commend the nurses who have been in the field. So far as we know their work has been satisfactory, their conduct ethical, and they have upheld the physician's interest among the patients visited.

We therefore recommend that the society endorse the work done in McLean County and suggest that this report be incorporated in the Minutes and a copy sent to the State Department of Health.

J. H. Fenelon,
Ralph P. Peairs,
Gerald M. Cline,
Committee.

AS THE GREAT WOULD SAY

"A good man is hard to find."—Demosthenes.

"I'm strong for you, kid."—Sampson.

"Tut, tut, I'd rather be a mummy."—King Tut.

"I'm all broken up."—Humpty Dumpty.

"Free lung, big boy."—Jonah.

"I ain't nobody's darling."—Cleopatra.

"On with the dance."—St. Vitus.

"The bigger they are the harder they fall."—David.

"Hot stuff, keep the home fires burning."—Nero.

"So this is Paris."—Helen of Troy.

"It floats."—Noah.

"The first hundred years are the hardest."—Methuselah.—Pickup.

Original Articles

THE WORKING RULE IN THE
DIAGNOSIS OF DISEASE OF BONE

JOSEPH COLT BLOODGOOD, M.D.,
BALTIMORE, MD.

A larger experience in the past few years has not only increased our knowledge of the various malignant and benign pathological processes in bone, but has enlarged our vision so that we are able to formulate some working rules in the diagnosis and treatment.

What we must search for first in the x-rays is the possibility of malignancy. A little delay, if the lesion is not malignant is rarely harmful.

If the roentgenogram fails to allow us to distinguish with certainty, then there is only left biopsy.

Biopsy should never be performed unless the consent of the parents, family or patient is first obtained, because there is no reason for biopsy unless you have permission or are prepared to radically remove the bone sarcoma by resection or amputation.

If you desire help in the diagnosis, it is safer for the patient to submit the x-ray to your consultant than perform a biopsy and then submit both the x-ray and the microscopic section.

In doubtful cases in which there is a possibility of malignancy, no harm is done by subjecting the area involved to x-ray radiation while the study of the case is going on, or while the plate is submitted to your consultants. This radiation, in addition, gives you the therapeutic test, because in some sarcomas there is almost immediate improvement after radiation.

Radiation of Bone Lesions. I will report my actual experience and not give the literature. I summarized this in 1927 (Radiology, March, 1927). In 1921 an adult male came under my observation with a diffuse soft-part swelling of the upper third of the arm extending to the shoulder. The x-ray showed bone destruction of the shaft of the humerus. (This is reported in detail with illustrations in Radiology for 1927). As our records show that no verified sarcoma of the upper extremity had been cured by amputation if the tumor has passed the local stage making resection possible, there was

*Read before the Section of Roentgenology of the Illinois State Medical Society.

no indication for biopsy. This patient was referred to Dr. Curtis F. Burnham of Baltimore and given intensive treatment with radium. Drs. Kelly and Burnham have a very large amount of it. Within ten days there was improvement and within twenty-one days palpation and the x-ray showed almost complete disappearance of the periosteal growth and better function of the shoulder-joint. This patient is living free from recurrence in 1929, almost eight years later. The only positive proof we have of malignancy is the x-ray, and I know of no other disease which would give the clinical and x-ray picture in this instance, but sarcoma. I think it will be ultimately accepted as a radium cure. More than five years ago two of my patients in which a diagnosis of sarcoma had been made from the x-rays, were treated by my colleague Dr. Max Kahn with x-ray radiation. Both are in good condition today, more than five years since the last treatment. In one patient the lesion occupied the upper third of the femur below the great trochanter. It palpated like a periosteal sarcoma. In the x-ray the slight bone destruction and bone formation suggested sarcoma rather than osteomyelitis. There is no verified case of sarcoma of the femur above the middle third that has remained well five years, even after hip-joint excarticulation. For this reason there was no indication for biopsy. In the convalescence after radiation a little abscess formed and a piece of bone was discharged spontaneously. The x-ray now, more than five years since the last treatment, shows almost normal shaft, and the patient has complete restoration of function. From experience gained since then, I am inclined to class this case with chronic osteomyelitis, very difficult to differentiate from periosteal sarcoma. I have reported an example of this in the *Journal of Radiology*, for March, 1920, Figs. 81 and 82. In this case the position of the lesion was identical—upper end of the femur. On palpation, there was a spindle swelling so characteristic of periosteal sarcoma. The x-ray showed bone destruction and bone formation. It was diagnosed, from the x-ray, sarcoma. A biopsy was performed and the excised piece was diagnosed sarcoma. The patient refused amputation. No treatment was instituted. It is now more than fifteen years, and all the palpable swelling has disappeared, and the x-ray shows practically normal bone.

In the second case, there was swelling in the region of the scapula, and the x-ray showed bone formation and bone destruction. There was no evidence of tuberculosis of the lungs. If it were sarcoma it meant complete removal of the scapula or shoulder-girdle amputation. The soft-part infiltration was so diffuse that the evidence was against complete removal even by a shoulder-girdle amputation. There seemed no indication for biopsy, and the patient was given radiation by Dr. Kahn. The symptoms gradually disappeared. Ultimately a sinus developed and a piece of bone was discharged. We are now inclined to feel that this was a case of osteomyelitis or tuberculosis of the scapula.

Dr. Watkins of Birmingham, Alabama, sent me some four years ago a piece of tissue removed with the curette from the tibia and an x-ray taken before operation. The microscopic appearance is that of a small round-cell sarcoma and has been classed in the laboratory as sarcoma of bone of the Ewing type. This patient was treated by radiation, and there has been no recurrence. She was generous enough to come to the clinic at the last meeting of the Radiological Society in Chicago.

Here, therefore, we have a radiation cure, by radium, of a tumor verified at biopsy.

There is a third case in which Dr. Campbell of Memphis, Tenn., sent me the x-ray and the section. The tumor involved the lower end of the fibula. The x-ray is typical of sarcoma of the periosteal type—bone formation and bone destruction. It is not more than two years since the treatment in this case, and the x-rays show restoration almost to normal.

In my own observation, with the tumor of the upper end of the humerus, I have already noted the rapidity with which the periosteal swelling subsided. I gather from the reports of Drs. Watkins and Campbell that the same was observed in their cases. I also have two other personally observed examples of the rapid disappearance of the swelling after radiation with radium. Both were treated by my colleague Dr. Burnham with radium at Dr. Kelly's hospital. In the first instance the lesion was in the lower end of the tibia. The palpable swelling was small. The x-ray showed a zone of the tibia above the epiphysis honeycombed, as in osteoporosis of non-use. There was no bone formation in the periosteal growth. This patient was apparently well

for some months. Then a nodule was noticed in the clavicle. There was a week of high fever, and then death. The physician in charge removed a piece of the clavicle. Sections of this show a Ewing sarcoma and not a multiple myeloma.

In the second instance the tumor involved the scapula. A biopsy was performed. No one will question the diagnosis of Ewing's sarcoma. The swelling of the scapula, the interference with function at the shoulder-joint, the pain and the tenderness disappeared in a few days after radiation with radium by Dr. Burnham. On two occasions recurrence of the symptoms was controlled by further radiation. Then the scapula was removed and the original pathological diagnosis confirmed. Then there was death from metastasis.

The point I wish to emphasize is, that in these five cases of bone sarcoma, four verified by biopsy, and one by x-ray, the effect of radiation was immediate, almost like intravenous arsphenamin in a syphilitic lesion of bone, while in the two other cases recorded here, both of whom are living more than five years since radiation, and whose diagnosis is now osteomyelitis, there was not this immediate response to radiation, in fact, they were made temporarily worse.

Therefore I agree with Ewing and his colleagues at the Memorial Hospital that an immediate amelioration of symptoms after radiation is a therapeutic test and suggests sarcoma, but by no means indicates that radiation will accomplish a cure.

Radiation in the Giant-cell Tumor. There is sufficient experience to justify its trial, but after a complete restudy I am still of the opinion that if the bone shell is intact about the central tumor in the epiphysis, it is wiser to explore for frozen section, and if the tissue is giant-cell tumor, to curet; if it is sarcoma, resect or amputate. If the bone shell is destroyed, especially when the tumor is situated in the lower end of the radius, the chances of curing by curetting alone are not sufficient to justify its employment. One must resect and do a bone transplantation. Therefore, one is justified in trying radiation first. In the giant-cell tumor the first effect of radiation is an increase of the swelling and the discomfort; then a gradual shrinking and relief of symptoms, but the process to full ossification is very, very slow. If the bone shell is destroyed, partially or completely, I repeat and emphasize, it is a good

plan to try radiation first. If it fails, resect and do a bone transplantation.

It is important to record here what has actually been accomplished by radiation, and I am giving you all the evidence that I can gather from my own experience and that in the literature.

Amputation. In 1920, in the *Journal of Radiology* for March, 1920, I recorded 70 examples of periosteal sarcoma in which two out of about fifty five-year cases remained well after amputation. This was about four per cent. of the total. These two patients are living today. In each the amputation was performed in 1913, and they were the only living cases in 1920 after five years. In 1923, three years later, the total number of five-year cures after amputation had increased to almost twenty-five, and the per cent. to almost twenty-five. It is very important to record that in all the cured cases the lesion was situated on the lower extremity and below the middle third of the femur, and there were no cures of sarcoma of the upper extremity by amputation.

Therefore, if the x-ray shows a lesion of the lower half of the femur, or the bones of the leg, and you can get permission to amputate, at the present writing amputation offers so much more than radiation, that the method of choice should be exploration, biopsy, and if the frozen section shows sarcoma, removal of the involved bone. When the sarcoma is in the femur or the tibia and cannot be resected without removing the knee-joint surface, amputation gives a better functional result, with an artificial limb, than resection with bone transplantation. But sarcoma involving the fibula can be resected providing the soft-part periosteal tumor has not involved the tibial vessels. Up to the present time all our sarcomas of the fibula have been amputated because of the extensive soft-part involvement. However, one case, in the middle third of the tibia, has been resected with successful bone transplantation, and the patient is free from recurrence now almost two years.

Resection. I am confident that the increasing per cent. of five-year cures after amputation is due to earlier intervention and this has been made possible by the increasing knowledge of the people. The diagnostic value of an x-ray picture is well known, and the importance of an immediate x-ray examination quickly after pain or swelling

of a bone or joint is beginning to be understood by a large number of people. There is other evidence that an enlightened individual has a better chance of a cure when attacked by malignant disease. In the first place, in the past seven years since my article was published in the *Journal of Radiology* for March, 1920, seven examples of sarcoma of the lower end of the humerus or bones of the forearm have come for treatment when the malignant disease could be completely removed by resection. These patients are all living today and two have passed the five-year period. Therefore, if the x-ray shows a bone lesion of the upper extremity of scapula of a local extent which will allow resection, one is justified in performing biopsy, and if the section shows sarcoma, to resect.

There is no theoretical or practical objection to giving these patients in whom amputation or resection offers more than radiation, the benefit of a preliminary treatment with radium or x-rays. But it simply adds to their expense and period of disability. I should only advise its employment when the patient is in the clinic whose members have had a limited experience in the diagnosis of bone lesions, and who have not a trained pathologist to make the diagnosis at biopsy from a frozen section. The radiation can be given while the x-ray film is being submitted to others for help in diagnosis.

In some cases it may be essential to perform a biopsy and to submit the sections to other pathologists. Then there should be radiation before and after such exploration. Biopsy, with an interval of two weeks before amputation, was performed in one of the cured cases that I reported in 1920.

A piece had been excised for diagnosis in the cases of Drs. Campbell and Watkins, already mentioned, and the treatment which, so far, has accomplished a cure, was radiation.

Brief Summary of the Common Bone Lesions Difficult to Diagnose. The common central lesions of bone are the bone cysts situated in the shaft of the long pipe bones, as a rule in patients under the age of eighteen, and the benign giant-cell tumor which is practically always observed in the epiphysis and commonly after the age of twenty.

We must differentiate these two common and distinctly benign central lesions from the chon-

droma, myxoma, chondromyxosarcoma, and the osteogenic sarcoma. The earlier the patient comes under observation, the more frequently will the x-ray fail to differentiate, and the decision will have to be made at the biopsy. Only within a few weeks a colleague sent to me an x-ray exhibiting a central lesion of the upper end of the tibia in a young child. On the theory of probabilities it should have been a benign bone cyst. In the x-ray, the irregular outline of the area of bone destruction was different from that usually present in the bone cyst, and malignancy had to be considered. A number of roentgenologists examined the plates and were about equally divided between benignancy and malignancy. The biopsy revealed a bone aneurism, that is, a cyst filled with blood surrounded by a zone of soft, friable tumor tissue, not unlike the bone aneurism or blood cyst most commonly observed with the benign giant-cell tumor. But this tumor did not involve the epiphysis, but the shaft. The tissue outside the blood cavity was an osteogenic sarcoma and not a giant-cell tumor or osteitis fibrosa.

The common periosteal or diffuse lesions are the osteogenic sarcoma and the Ewing tumor. With the rarest exceptions, the Ewing sarcoma involves the shaft, and as a rule at the end of the bone, while the osteogenic may override the epiphysis. But there are other types of sarcoma of bone—the rare fibrosarcoma, the more common sarcoma arising in chondroma or myxoma, and the less infrequent angiosarcoma.

Now that patients are coming under observation very early we are observing sarcoma as a strictly periosteal lesion, with but little involvement of the cortical layer beneath the periosteum, and if there is much bone formation in them, it is very difficult to differentiate them from ossifying periostitis and exostosis.

The term periosteal sarcoma must not be given up, because the vast majority of sarcomas of bone, when first seen, show a periosteal soft-part tumor. This can be felt with the finger, it throws a shadow in the x-ray; it may and may not be ossified, and, if ossified, it may be excessively so or slightly. Beneath the periosteal tumor, the cortical bone shows varying degrees of destruction, with and without involvement of the marrow. Very quickly the periosteal sarcoma surrounds the shaft with its periosteal growth

and infiltrates the entire shaft with tumor tissue which is of two kinds—sclerosing, when the involved area of bone is pictured in the x-ray of deeper density; or, there is definite bone destruction from a slight osteoporosis through rarefaction, like a honeycomb, to complete destruction.

The point is that the earlier we see these periosteal sarcomas with involvement of the shaft, the more difficult is the diagnosis from chronic osteomyelitis.

One of the last patients who came under my observation within the past three weeks, came with a written diagnosis of osteogenic periosteal sarcoma of the upper third of the femur, with the advice to be treated by hip-joint amputation or radiation. The lesion was situated too high for amputation, and there was something in the palpation and x-ray picture which suggested the diagnosis of chronic osteomyelitis. The history of numerous root abscesses of the teeth which had been extracted, the fever and slight leucocytosis, and the palpation of a soft-part tumor unconnected with the shaft, practically excluded sarcoma. In addition, our experience in this group had greatly increased since we advised amputation for one in 1910, who is living today with a good limb, and gave another in 1922 radiation. Events up to today confirm the diagnosis of osteomyelitis in this case.

We must meet these facts. In the past few months two cases have come under observation which had been carefully studied by experienced roentgenologists. In one, the conclusion was about fifty-fifty between sarcoma and bone cyst. The biopsy revealed an osteogenic sarcoma. In the other, all the first diagnoses were osteogenic periosteal sarcoma. Yet, the entire evidence now favors chronic osteomyelitis. These lesions of bone difficult, or impossible, to diagnose in the x-ray, are increasing in numbers, in spite of the fact that the experience of most of us is also increasing. The difficulties are due to our opportunity to examine and x-ray these bone lesions at a much earlier period after their onset. Rickets has practically disappeared. Tuberculosis, because of joint involvement, has rarely been difficult to diagnose. Now and then an area of tubercular caseation in the shaft or epiphysis may simulate bone cyst, giant-cell tumor or central sarcoma. The Wassermann test has practically eliminated syphilitic osteomyelitis from the

diagnostic difficulties. Acute osteomyelitis with its typical clinical picture—high fever and leucocytosis, seems to be growing less.

But chronic osteomyelitis without the formation of sequestra, with little or no leucocytosis or fever, and definite bone formation and bone destruction in the shaft beneath the periosteal tumor is becoming more common. Then, in adults, we always have to bear in mind that the single lesion may be the first evidence of metastasis to bone, and these single lesions may be distinctly central, like the bone cyst and the giant-cell tumor, or may assume an x-ray picture of diffuse or periosteal sarcoma. On the other hand, now and then osteomyelitis may involve two or more bones. Bence-Jones bodies are not always present in multiple myeloma, and in a few instances these bodies are found in the urine in benign lesions of bone. I have just observed a case of post-typhoid osteomyelitis of a rib with Bence-Jones bodies in the urine.

Diagnosis. It is getting more difficult. We must have a working rule. Take an x-ray, not only of the involved bone, but of its opposite, and always of the chest and pelvis, and I am now adding to this the skull, in order to exclude Paget's disease and multiple lesions of the skeleton. Never neglect to look for Bence-Jones bodies in the urine. Take the blood Wassermann, total and differential leucocyte counts, look for foci of infection in teeth, tonsils and sinuses; think of tuberculosis of the lungs; search for a primary tumor; remember that traumatism may produce an ossifying periostitis or myositis simulating periosteal sarcoma; in the small pipe bones, the bone forming spindle-shaped periosteal shadow is usually a fracture and not a sarcoma. Three such cases have been sent to me last year with the diagnosis of sarcoma.

Learn how to present amputation and resection to the patient or family when this is the operation of choice, so that the patients can be given the benefit of a biopsy which will lead to amputation or resection if the lesion is sarcoma. If the situation of the bone lesion and its character indicate that amputation and resection offer no assurance of a cure, then try radiation and do not give the patient or the family anxiety by suggesting malignancy. I have recorded here three five-year cures in which amputation could not be done with any assurance of help. None of

these patients had any mental anxiety. Then, there are the observations of Campbell and Watkins, whose malignant lesions have been apparently cured up to this time.

Today more than ever before the differential diagnosis of bone lesions is becoming almost a specialty, whether the diagnosis is made with the x-ray or biopsy. The cases require most careful investigation, the patients and their families must be handled with studied tact. The probability of a cure of sarcoma in its early stages has greatly increased, almost up to thirty per cent., when the lesion is resectable in the upper extremity, or when it is situated below the middle third in the lower extremity. We also must remember that radiation has its verified cures. I know only those mentioned in this paper. But their number is greater than those I could report as cured by amputation in 1920.

Most of the statements made in this brief report have been made possible by experiences gained since July, 1928, and I have been greatly helped by two research students, Drs. Charles F. Geschickter and Murray M. Copeland, who first published their studies on multiple myeloma in the *Archives for Surgery* for April, 1928 (Vol. 16, Page 807), and then gave their entire time in the Surgical Pathological Laboratory of Johns Hopkins University to a study of lesions of bone. Two papers are ready for publication—the first on the nature of one giant-cell tumor and osteitis fibrosa. The second, on the nature of Ewing's sarcoma of bone. The third paper, on osteogenic sarcoma, is in course of preparation.

DISCUSSION

Dr. D. D. Monroe, Edwardsville: I appreciate this paper very much, and I want to call attention to one incongruous thing. In another room the industrial surgeons are meeting to talk about accidents. Here we have one of the finest x-ray demonstrations that could possibly be chosen, and that enters into the field of accidents. I wish we could get together on some of these valuable papers in the Society, especially one like this.

Dr. P. B. Goodwin, Peoria: I would like to ask Dr. Bloodgood one question. I would like to have him state what percentage of his bone cysts occur in the shaft. Is there a greater percentage in the shaft than in any other portion of the bone?

Dr. T. D. Cantrell, Bloomington: We had one case which I watched for a number of years, of a photographer, on his feet quite a little, with a cystic tumor. I am relating this to get the Doctor's opinion when I get through. There was a cystic tumor at the distal

end of the tibia reaching distressingly near the articular surface; a young man twenty-five years of age. I watched that for a number of years, taking frequent x-rays without seeing much change. The psychology of the x-ray seemed to relieve his pain some time after the pictures were taken. He finally got to suffering more severe pain. The pain was so severe and the ankle so swollen that the surgeon went into it, opening up the upper portion of the cyst and draining it out, keeping as far away from the articular surface as possible, and packed the cavity. He seems to have gotten well; at least, he is back at work again.

The outer shell was not disturbed until it was disturbed by the surgeon's drill. I think it was not done with the cautery. It was done by the usual surgical method. It was full of pus, not blood, but pus. It drained out readily; in fact, shot way out, the pressure was so heavy when we first opened it up, making a fairly good opening and packing it with gauze and leaving it for a week at a time instead of the frequent packing surgeons used to do. The boy was not in the hospital many weeks and is now back on his job. I have not the slightest idea what the trouble was. I have given the description about as I found it.

Dr. I. S. Trostler, Chicago: I want to take exception to what Dr. Cantrell said about the psychological effect of the x-rays relieving pain. I think and have proven that the x-rays will relieve pain.

Dr. Bloodgood: We have just about finished a study of some 300-odd cases of bone cysts and about the same number of giant cell tumors. Ninety per cent. of bone cysts are in the shaft of the bone in individuals before the age of ossification, that is, under eighteen years of age. Most of them are under fifteen years of age. We have had one at birth. I may have a second bone cyst at birth. But the bone cyst now and then does occur in the epiphysis with adults. It occurs in the great trochanter—the neck of the femur is really the shaft of the bone—and now and then it will occur in the ilium. It occurs in the shaft of the clavicle. I have never seen it in the sternum; very rarely in the ribs, except when it is part of a multiple disease; very rarely in the skull.

The bone cyst is a disease of the shaft of the bone before the ossification of the epiphysis. The giant cell tumor is a disease of the epiphysis after twenty years of age, but we do see giant cell tumors in bones like the os calcis, so there are exceptions to the rule.

In connection with the question of the tumor at the lower end of the ulna, the big tumor where the pain is relieved by the x-ray. Of course, we have not the x-ray before us, but operations have been done and pus found. As a rule, Brodie's abscess is in the epiphysis and not the shaft. I had one Brodie's abscess in the shaft of the fibula that I explored which contained pus, contained organisms, and got well by drainage only. I judge this tumor had a bone shell. It contained pus. There was nothing inside. I drained it like any other abscess, except I kept changing the packing, and it got well. They happen now and then, but I have this case of the shaft of the fibula that is

identical clinically. The x-ray showed it was an osteomyelitis.

You spoke of control of hemorrhage. As a rule, it is not difficult to control hemorrhage in these cases, but if the curetting for a giant cell tumor is followed by a good deal of hemorrhage when you take the Esmarch off, so much so that you couldn't close the wound or couldn't transplant bone, I would pack it tightly with gauze. It is hard for me, having been brought up on iodoform gauze, not to use it. When I use gauze in the tissues, I would use iodoform gauze rather than the plain. There is something in it besides the odor and color. You close the wound and a few days later you take the gauze out and close the wound or transplant bone.

Hemorrhage has not been a difficult condition to manage, because we don't get the big bone cysts. When I first wrote on bone cysts in 1910, I described the danger of attempting to do periosteal resection. One bled to death. Leave them alone or amputate. No one goes on to a big bone cyst in these days.

The first case I saw at Johns Hopkins University was a woman in 1904 with a very large tumor. It was diagnosed as osteosarcoma. Amputation was advised and refused. When I studied my forty-two cases in 1900, this lady turned up. She refused operation and refused to die. I read in the literature how dangerous it was to do a periosteal resection, so I refused to operate without taking off the leg. I said, "Keep your leg until it is no use and have it taken off." She turned up with the leg of no use.

A colleague in the same hospital said he would save the leg, and did a periosteal resection. We didn't have blood transfusion then. She died and I got the specimen. The same year another colleague did the same thing. She didn't die, but he took the leg off in order to prevent her from dying.

But that is over. The first big giant-cell tumor in 1902 bled so I had to fill in the packing with a hammer and chisel. Hemorrhage is not a dangerous thing.

As to the cautery, it depends on how big the cavity is. If you have something to attack, you have to have the soldering irons. I wouldn't attempt to operate on some tumors without the soldering irons any more than you would attack a division of infantry with a regiment. You have to have the soldering irons, which cost only twenty-five dollars. There is a little gas stove. You ring a bell, the gas is turned on, and in seven minutes you have a hot iron. Ring two bells and you get the electricity. Ring three and you get the diathermy. In working in the mouth, nothing can compete with different types of diathermy. They have come to stay and are a wonderful addition to our instruments, but I wouldn't think of operating without my electric cautery ready to work. I always have two electric cauteries in the event that one breaks down.

When I come into the operating room, you hear them testing the cauteries. I want them ready before I get there, but I wouldn't go on without knowing the cauteries and diathermy would work. The life depends

upon that cautery when you are operating on some conditions.

I have seven specimens amputated because, after curetting well for giant cell tumor, they put radium in, which produced osteomyelitis. It is better to bury radium than to put it in an open wound. They had the leg amputated for infection, and there was no recurrence of the tumor.

When you have a bone tumor, and there is some doubt in the x-ray, and the surgeon says, "I will do a biopsy," say: "Let's get an opinion on the x-ray before the biopsy." It is a dangerous thing for a patient to wait for an opinion on a biopsy, but it is not dangerous to wait for an opinion on an x-ray.

One thing you can do while waiting for an opinion on the x-ray is to give radiation. It does not hurt any bone disease to radiate it.

It is remarkable how little respect radiologists have for surgeons. You are always radiating our wounds. The one thing we can take care of is the breast. If any one has a recurrence in the chest wall, it is a hopeless cancer or a hopeless surgeon. I have made up my mind that my patients are going to get radiation before the operation. I can get rid of the breast in twenty minutes. I can get rid of the whole thing with diathermy in an hour. I want to radiate along where the intercostal things are going in, and I think it is better to do it before operation. My great friend and colleague in London, after traumatizing with a knife or cautery, puts his radium needles along the intercostal. All advanced cancer of the breast should have the radiation before. You can operate the day after you radiate if you use a cautery.

The thing to remember is this: with doubtful bone tumors, radiation and rest. Don't let them walk around—rest and radiation while you are waiting for a diagnosis.

CONTROL OF PUBLIC AND SEMI-PUBLIC WATER SUPPLIES*

JOHN MONGER, M. D.

COLUMBUS, OHIO

The fundamental things of public health administration are subjects in which the medical profession has an acute interest, and public health administrators always welcome the opportunity to enlist the medical profession's support.

I welcome this opportunity to bring to you some of the more or less prosaic problems that face your health department, with the hope that even greater support than you have already given may be accorded those whose duty it is to protect the water supplies.

There has been no other activity of public

*Read before the Section on Public Health and Hygiene, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

health which has cut so deeply into the income of the doctor than has the protection of water supplies, and it is one of the glories of the medical profession, not alone of this state, but all states, that they have uniformly been the leaders in creating public opinion favorable to correction of bad water supplies.

After all, public health is, in its broader sense, simply the application of the principles of preventive medicine, and the doctor has always backed up sane public health functions.

The control of public water supplies has always been one of the important functions of public health administration.

The dissemination by drinking water of diseases, commonly known as water borne diseases, is too well known by this group to deserve comment in this paper. Suffice it to say that the reduction, to a marked degree, of typhoid fever and kindred ills, has been practically concurrent with the progressive improvements in the hygienic quality of drinking water. An important factor in the general reduction of infant mortality is pure water. Dysentery and many other diseases have been reduced almost to the vanishing point. Sanitarians look back, with much gratification and pride, upon the great reduction in the incidence of so-called water borne diseases.

There are two general classes of public water supplies; namely, those derived from ground water, and those having surface water as their source.

Ground water supplies, if obtained and developed with due regard given to the many factors influencing the quality, have been considered satisfactory from the standpoint of disease prevention. However, some of our greatest typhoid epidemics have been attributed to ground water supplies, and usually some marked defect in the development of the supply has been found.

There is, therefore, no justification for any lessening of vigilance on the part of public health officials, not only in the case of new supplies, but also with the operation and maintenance of existing ones.

In many sections of the country, it has been necessary to secure water supplies from surface sources. As an illustration of the importance of this class of supply, I would point out that in Ohio, with a population of 6½ million, nearly 3 million people are supplied with surface water. The old saying that "running water purifies it-

self," has long since been known to be misleading to say the least.

In a recent publication of the United States Public Health Service, the statement is made, that in practically no instance is any untreated surface water in the United States to be considered hygienically safe.

Vital statistics show that, with the exception of a few instances where a watershed was practically free from contamination, cities using surface water, and prior to installing treatment devices, experienced uniformly high typhoid death rates.

As a concrete example of the relation of water treatment to the incidence of typhoid, permit me to cite the case of Cincinnati, Ohio. As you know, Cincinnati is situated on the Ohio River, from which stream the city has for many years obtained its public water supply. The total population in the Ohio River drainage basin above Cincinnati is approximately 7 million, and the river has for a long time carried a heavy bacterial pollution load. In 1907, a rapid sand filtration plant was put in service at Cincinnati. The period of accurate data, with respect to typhoid fever statistics, extends back to 1887. In the twenty-year period (1887 to 1907, inclusive), the average typhoid death rate for the city was 54 per 100,000 population.

To illustrate the sharp decline immediately following the installation of water treatment, we find that the average rate for the five-year period prior to filtration (1903 to 1907 inclusive), was 56; while for the following five-year period (1908 to 1912, inclusive), the rate was 11 per 100,000. The average rate for the nineteen years following filtration (1908 to 1926, inclusive), was 6.1. Comparing the rates of the twenty-year periods, before and after filtration, it will be noted that a reduction of practically 90% has been effected.

To complete the story, the average rate for the last five years of record (1922 to 1926, inclusive), was 3.0 per 100,000; and for 1926, was 2.6. As low as the latter figures are, they can not be charged solely to the water supply, for the local health officials report that, as a result of careful epidemiological study, 75% of the cases have been definitely traced to sources other than the public water supply.

I graduated from University of Cincinnati Medical College in 1902. Then the typhoid wards

overflowed the hospitals until in August and September the whole hospital was nearly filled. Recently, the dean of this school told me they barely had enough typhoid for clinical teaching purposes.

It must be borne in mind that the same vigilance, mentioned above in connection with operation of ground water supplies, must be exercised in the operation and maintenance of water purification plants.

In Ohio, we have insisted that supervision of these plants be of high order and by technically trained men. The Ohio Health Department has been instrumental in the formation and continued functioning of the Ohio Conference on Water Purification. This organization, now in its eighth year, is composed of operators of water purification plants in Ohio, and other municipal officials connected with water supplies. A meeting is held yearly, at which time opportunity is afforded for the interchange of information and ideas, and the discussion of problems pertinent to water treatment plants.

Another type of water supply which has received more detailed attention from sanitarians in recent years than formerly, is the so-called semi-public water supply.

These supplies are available to the regular or casual user, and consist of water supplies for public schools, colleges, isolated hotels, country clubs, and the like, as well as roadside wells, and wells for summer resorts, tourist camps, churches and fairgrounds. The importance of proper control of this class of water supply has been greatly increased by the improvements in our highways, and the large amount of travel on these good roads by the general public.

In Ohio, we became convinced that information as to the location of safe drinking water was more valuable, and would have more salutary effect on both the owner and the user of the supply, than by attempting to prohibit the use of unsafe water.

Accordingly, in 1924, we initiated what was termed a "Seal of Safety Campaign." Our efforts were concentrated, at first, on the main traveled highways, and, by enlisting the aid and co-operation of the county health departments as well as the State Highway Department, we have made satisfactory progress. We have also

received the hearty support of the various automobile associations.

Briefly, our plan is to examine wells and other supplies which are offered to the public for use. Samples are collected and a sanitary survey made; careful scrutiny being given to the general surroundings of the well and to the construction of the well itself. If a seal cannot be issued, instructions are given as to improvements necessary before a seal can be given. Where a seal is given, the well is prominently marked, and, in addition, signs are erected by the highway department on each side of the well to notify the approaching motorist of the existence of a safe water.

Over 3000 miles of state highways have been covered, and all wells deserving a seal of safety were marked. It is significant that over 300 supplies rejected are making necessary improvements to their supplies, that they may be awarded seals.

At the outset, it was felt that rigid requirements should be established for these roadside wells and other semi-public supplies, and, accordingly, the standard has been maintained on a high plane. We have felt rewarded for this attitude by the fact that it has not been necessary to revoke any seals as a result of re-examination of wells pronounced safe.

I am happy to state that serious attention is being given by public health workers to roadside wells over the country at large. To my knowledge, some 7 or 8 states are carrying on this work similar to our plan in Ohio, and 42 states are engaged in supervision of roadside wells and other semi-public supplies, in some form or another. Illinois is doing creditable work in this endeavor. We know for a certainty that the traveling public is appreciative of this service, and it can not be gainsaid that the use of safe water will have its effect on the typhoid rates of the cities from which these people come.

Although the prime motive of our "Seal of Safety Campaign" has been the protection to the traveling public, it has had marked educational effect in the rural districts. Many inquiries are received concerning proper methods of developing and protecting private wells, so great, in fact, that we had to add an additional bacteriologist in our Laboratory to care for this increase.

In one county in Ohio, plans are being made by the agricultural authorities to conduct a cam-

paign similar to the state-wide campaign, and it is proposed to carry the message of "how to insure a safe water to every rural home in the county."

That there is need for improvement in the rural sections, is proven by records of vital statistics. It has been noted, in recent years, that the urban typhoid death rate has declined more rapidly than the rural rate, and, in fact, for the past 9 or 10 years, has been lower. In Ohio in 1926 (1927 records not complete), the urban rate was 3.4, while the rural rate was 6.1 per 100,000. We hope to see this difference removed in the next 5 to 10 years.

In discussing the subject of protection to the traveling public, mention must be made of the work done by the United States Public Health Service toward insuring safe drinking water on common carriers. The United States Public Health Service requires that all water used for drinking or culinary purposes be certified. This, of course, applies to vessels as well as land transportation. This work is done by co-operation of the various state health departments in making examinations and reports on which the Service issues permits. This has been an important work, and has, no doubt, prevented much sickness. Its educational value has been great.

Before closing this paper on water supplies, some of the high lights of stream pollution activities should be touched upon. This is really necessary because the two subjects are so closely allied.

Stream pollution, as you know, is occasioned by the discharge of municipal sewage and industrial wastes into our water courses, either inadequately treated or, in most instances, not treated at all. In recent years there has been an awakening of public interest in this subject, and there is a growing intolerance against this defilement of streams and pollution of our sources of water supply.

In the case of sewage, we are concentrating our efforts, in Ohio, not so much on the installation of new plants, although, our list of plants is steadily increasing, but on the proper operation of the plants that we have. We feel so strongly on this point that, on several occasions, we have refused to sanction new plants until assured definitely that funds were made available for their operation.

The subject of industrial waste disposal is being given a great deal of attention at this time. In Ohio, we have tried to meet the situation by calling together, at different times, the various groups of industries, and have said to them in effect: "This matter of improved waste disposal is your problem; we have sufficient power by legislative enactment to compel you to correct conditions, but we will not use it unless other methods fail; let us proceed in a spirit of co-operation, and both do our utmost to bring about the desired accomplishments."

Time will not permit more discussion on this subject, but I desire to say that we have been highly pleased with the attitude taken by the industrial executives, and with the results obtained. The work is far from complete, but, at least, we are making progress.

In our own state, we must solve our own problems of stream pollution, but we frequently have issues more than state-wide in scope. In the case of the Ohio River, the issue has been met by an "Interstate Stream Conservation Agreement."

This agreement came about partly by accident, but mostly by necessity.

In Ohio, we had the terrific problem of pollution of water supplies by phenol discharged by plants making coke and by-products from coal.

In Cleveland, at times the city water was not usable, and as new plants were established on the Ohio River basin, the water of Ohio River cities was ruined.

The Ohio Coke Companies agreed to put in expensive treatment works, and this was successful in Cleveland.

On the Ohio River, Ohio operated companies contributed less than 5% of the phenol. An agreement between Ohio, Pennsylvania and West Virginia, providing for uniform policies of enforcement, which is, in effect, a treaty, was signed in 1924. It worked so well that Kentucky, New York, Indiana, Illinois, Tennessee, Virginia and Maryland, comprising all the states on the watershed, signed it, and it is resulting in the solution of a problem that, without it, could not have been solved.

Recently, when Chicago had a serious outbreak of this nuisance, a conference of all the states on the Great Lakes Basin was called at Gary, Indiana. An agreement, similar in context to

the one already in successful operation on the Ohio River, is now in process of being completed.

One cannot in a brief time, more than sketch these many tremendously important activities. No health department can work out solutions of these problems without public support, and I hope that we may have in the future, as we have had in the past, the support of our profession in this work.

DISCUSSION

Dr. Isaac D. Rawlings, Springfield: Dr. Monger told me he wrote this excellent paper which you have just heard, on last Sunday night; therefore, I have not had a copy of it and have had to guess as to what he would say.

Illinois like Ohio and many other progressive states has been active in recent years in safeguarding the waters consumed by her citizens and the visitors within her gates. Time does not permit of a detailed discussion of these many activities for safe water supplies. I can but refer to two or three of these.

1. Water Supplies of Interstate Carriers. Control of water supplies on trains, boats, and so forth, in Illinois, was started in 1918 under a cooperative agreement with the United States Public Health Service.

The Illinois Department of Public Health through its water laboratory in the Division of Sanitation, makes inspections and analyses and reports its finding to the U. S. Public Health Service.

In 1918 there were eighty-six watering points in Illinois used by railroads while in 1927 this number had increased to 237 such watering points. That the Illinois Department of Health really functions in this activity is evidenced by the fact that during the past calendar year Illinois was the only state in the Union, having more than seventy-five watering points, which showed 100 per cent. action on every supply and railroad. The interstate water supply control since 1918 has resulted in a decrease in typhoid and other intestinal infections formerly disseminated by water on common carriers.

The improved cleanliness and safety of these water supplies of common carriers and the higher standards that have resulted therefrom have aided in bringing about improvements in other public water supplies. In this work all the railroads of Illinois have given us their full cooperation and in this activity our relations with the U. S. Public Health Service have been cordial.

2. Safe Water Seals. Illinois has rapidly extended her hard road system in recent years and with thousands of people in every state taking extensive automobile tours the safety of the water supplies at our roadside wells and in our tourist camps became an interstate health problem.

Following the example set by Ohio, the Illinois Department of Public Health through its engineering division undertook the inspection and analysis

and placing of safe water seals on wells along the state hard roads constantly used by the tourist travelers.

At the end of the field-inspection season of 1927 4,000 miles of hard road had been covered and over 1,400 wells inspected. Of these 915 were dug wells, 394 drilled wells, and 105 were driven. The first safety seals used were made of lead, shaped like the state of Illinois, and fastened to the pump by copper wires. These seals proved so attractive as souvenirs for travelers that many have been stolen, so we have been compelled to adopt a new type of seal of the same design. The new type of seals are known as decalcomanic transfers. Each seal is given a number and the calendar year is placed above the seal. As long as these seals remain in good condition it will be necessary only to change the year from time to time. This safe water seal work is being extended as rapidly as possible to all school wells and wells at chautauqua meets, summer resorts, and so forth.

The record and report forms used in connection with common carrier supplies and roadside wells activities are available here for any who are interested.

3. Ohio River Basin Agreement. The Ohio River Basin Agreement which was originated by Dr. Monger, and has been so ably described by him needs little discussion. It is a logical, effective and economical means of controlling the sanitary quality of interstate streams as it makes use of the existing sanitary engineering machinery of the health departments of the several states concerned. Illinois was very happy to enter into the Ohio River Basin Agreement.

Because of the dilution and distance of travel from municipal and industrial sewer and waste outlets into the Ohio river and its tributaries above Illinois water supply intakes, no measurable objectionable pollution at the Illinois intakes has occurred in the past. Therefore, the signing of the agreement by Illinois could not bring about any immediate or measurable improvements in the water supply of cities along the Illinois shore, but the adoption and carrying out of the agreement has prevented pollution and will prevent future additional pollution of the Ohio river which might in the future have caused measurable and noticeable pollution in the river as it reaches Illinois.

The signing of the agreement by Illinois has, therefore, been on the grounds of prevention, with the appreciation that Illinois had little to give and much to gain thereby, and a realization that the principles of interstate stream-sanitation control were sound and warranted the support of all active state health departments in the Ohio river basin.

The full value of interstate stream-control agreements will be obtained only when the state departments of health have been given reasonable and proper jurisdiction over stream pollution in their respective states. Ohio and Pennsylvania undoubtedly occupy better positions in that respect than

some of the other states, especially Illinois. It is hoped that this interstate stream sanitation agreement may result in better stream-pollution legislation in states signatory to this agreement and thus bring about greater uniformity in all of these states in such work both for municipalities and industry.

I want to congratulate those in charge of the proceedings on the fact that they have presented such an excellent program and especially because they have brought to us noted state health officers from other states. Dr. Welch of Alabama, president of the State and Provincial Health Authorities of North America and an authority on public health, Dr. Monger of Ohio also an authority, who has done more than any other health officer in the middle west probably in cleaning up stream water supplies. Dr. Bishop of Tennessee, also a visiting State health officer, has brought us a fine message, as have the others. I think we are to be congratulated upon this excellent program.

OCCUPATIONAL THERAPY*

DANIEL H. LEVINTHAL, M. D.

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CHICAGO

It is now well understood that orthopedic surgery consists of the *prevention* and *correction* of deformities and the *preservation* and *restoration* of *function*. Notable advances have been made in all the principles of orthopedic surgery during the past twenty years, but the greatest progress has been made since the recent war, especially in occupational therapy.

Without the assistance of physiotherapy, hydrotherapy, heliotherapy, massage and occupational therapy, the results of rehabilitative surgery would not be so encouraging.

Occupational therapy is based on the principle that an occupation which requires a series of coordinated, specific, voluntary movements, involving the personal interest of the patient will attain or maintain the maximum physical condition of the parts involved. The psychological aspect of the handicapped is a very important consideration. The ancient Greeks surrounded their patients with beautiful pictures and diverted their minds with music.

Many years ago Dr. Benjamin Rush wrote a letter to the board of managers of the Pennsylvania Hospital advocating the use of certain forms of labor for the physical benefit of pa-

tients. In 1803, Reil wrote a book on the subject of employment as a diversion for mental cases. Since 1813, Bloomingdale Hospital at White Plains, N. Y., has employed various forms of occupation for patients.

It was not until the close of the Civil War, however, that occupational therapy was used in hospitals other than those for mental diseases. At that time patients were set at light occupations, such as making candles. In 1906, Miss Susan Tracy, one of the pioneer occupational therapists in this country, advocated a course in this subject as a part of every nurse's training.

The real necessity for occupational therapy was apparent during the World War. It should now be just as important in every civilian hospital as are the physical therapy and other departments. No longer do the physicians and nurses look upon the aides as intruders in the ward. They are an essential part of our service to humanity.

The physician should prescribe occupational therapy at the proper time in the course of his treatment of a case, noting for the aide the diagnosis and parts to receive special attention. (Figs. 1 and 2.)

The therapist must have a working knowledge of joint and muscle action. The object of her efforts will be the restoration of normal, coordinated function of nerves, muscles and joints. She begins by an analysis of her patient both physical and mental, and records on a special chart the range of motion and strength by means of protractors and spring scales. The improvement in the physical condition and the joy of accomplishment stimulates the convalescent patient as he watches his chart and observes the products of his efforts.

The work should be started in the ward. It may begin simply by the reading of books or simple basketry or some similar light occupation of the diversional type. This makes the convalescence more bearable. Later the patient may be taken to the shop.

The work is divided into three types:

1. Occupational—with curative and vocational outlook.
 2. Curative or therapeutic, and
 3. Vocational, having economic value.
- There must be cooperation between the vari-

*From the orthopedic and occupational therapy departments, Michael Reese Hospital.

ous departments. The physical therapy department working together with the occupational therapy department to attain the same objective. The patient must never be fatigued. Swaim has well said, "The greatest single danger in orthopedic occupational therapy is fatigue, which does more permanent harm than

MICHAEL REESE HOSPITAL
OCCUPATIONAL THERAPY PRESCRIPTION

Date.....
Ward.....
M.....
Patient's Name
is referred to the Occupational Department for
Curative }
Diversional }Therapy.
Age..... Vocation.....
Diagnosis.....
Work recommended—
shop work
ward work
1. Light—requiring little concentration.
2. Light—requiring concentration.
3. Requiring concentration and physical effort.
..... M D.
Attending Physician

FOR TYPES OF WORK GIVEN SEE REVERSE SIDE.

any one other factor and should be avoided at all hazards."

The therapist knows that regulated rest plus exercise causes an increase in the blood supply and growth. She therefore constantly supervises the work of the patient. She knows that the occupation must have a strengthening action on the weakened muscles and a relaxation effect on the stronger, opposing group. For example, if a patient has a weakened forearm flexor group, no work should be permitted that gives equal stress on the biceps and triceps, for it is very evident that the stronger triceps will improve more rapidly than the weaker biceps. The work assigned must actively enhance the power of the biceps and allow the triceps to act more pas-

sively. Hot swollen joints must never be exercised. Pain which persists for twenty-four hours is a warning signal that the work has been overdone. Passing pain which subsides in an hour or two is insignificant.

If the joint motion is good and the musculature weakened then a craft requiring strength is desirable, but if the musculature is good and joint motion is desired then work requiring strength is not essential.

The writer disagrees with the statement that "any general hospital where patients do not remain over a month does not as a rule require an occupational therapy department." Gaenslen of Milwaukee urges early craft work to shorten the convalescent period.

Types of Movements. Extension is the straightening of a joint, e. g., the knee is in extension when standing straight.

TYPES OF WORK

WARD WORK

Light - - - requiring little concentration.			
Sewing	—	Embroidery	— Crocheting — Knitting
Light - - - requiring concentration.			
favours and gifts	—	colonial mats.	
cord work	—	simple weaving	
types of crocheting	—	types of knitting	
raffia and grass basketry			
bead work			
Requiring physical effort and concentration.			
basketry	—	leather work	

SHOP WORK

Light - - - requiring concentration.			
bookbinding	—	painting baskets	
decorating boxes	—	clay modelling	
Requiring concentration and physical effort.			
wood work	—	metal work	— weaving
rush seating	—	caning	

Flexion is bending a joint, e. g., bringing the hand to the face flexes the elbow.

Abduction is movement away from the mid-line of the body, e. g., raising the arm sidewise away from the body.

Adduction is movement toward the midline of the body, e. g., placing the right hand on the left shoulder causes adduction of the right arm. Crossing the legs causes adduction of the lower extremities.

Pronation of the forearm is movement causing the palm to be turned downward or backward.

Supination of the forearm is movement turning the palm upward or forward.

Circumduction is movement in a circle, e. g., shoulder movement.

Rotation is turning or twisting around an axis, as turning a knob with the wrist and arm relatively rigid.

Consideration of Special Movements. Movements of the thumb, fingers and wrist are required in knitting, weaving, modeling, carpentry, engraving, machine shop work, basketry, leather tooling, belt knotting, in playing the piano or violin, and in using the typewriter and adding machine.

Elbow and shoulder movements are necessary in hammering, sawing and planing, rug weaving, winding of yarn, working with breast drills, painting, farm work, e. g., hoeing, raking. Also in using the rowing machine, horizontal bar and wall pulleys, and blackboard exercises.

Back movements are involved in greenhouse work using low and high benches. The rowing machine is also very useful for back movements as well as forearm, arm, thigh, leg and foot exercises.

Hip, knee and ankle movements are increased by using the bicycle, jig-saw, grindstone, foot lathe, rug weaving, carpentry and machine shop work, rocking chair, sewing machine, dancing, bicycle riding, and for children, tricycles and kiddy cars.

In establishing an occupational therapy department and curative workshop one should refer to the monograph of Dr. R. T. McKenzie, entitled, "Reclaiming the Maimed," and that of Major B. T. Baldwin on "Occupational Therapy Applied to Restoration of Function of Disabled Joints." Also the "Report of Committee on Installation and Advice." Archives of Occupational Therapy, September and October, 1924. 104 South Michigan Avenue.

THE HEART IN GOITER CONDITIONS*

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The question of goiter is largely a question of the heart. Toxic goiter and functional changes in the heart are inseparable. There are never any toxic manifestations of the thyroid without definite functional changes in the heart.

The palpitation is transient. Very often the initial attack is a typical case of paroxysmal tachycardia. The tachycardia is likewise evanescent. The progression may be slow or it may be rapid becoming permanently rapid, then more rapid with a pulse resembling a Corrigan's pulse in feel, then auricular flutter and auricular fibrillation.

The cardiac impulse becomes more and more distinctive as the toxicity increases. It is characterized by a hard forceful slap with rapid retraction. It reminds one of a combination of the strong heave of a greatly hypertrophied heart with the sharp slap of a dilatation.

Murmurs when they develop are heard most frequently in the pulmonic area; sometimes in the aortic area and over the vessels of the neck. These murmurs are not associated with any change in size, shape or position of the heart. They resemble an aortitis more than anything else with a soft blowing systolic murmur. They can be differentiated by the absence of change in the base of the heart. A murmur at the apex that is transmitted to the axilla has no relationship to goiter, but is a frequent complication.

Painstaking care must be used in determining murmurs over the gland itself since pressure from the bell or bowl of the stethoscope can produce a murmur usually of a to and fro nature. The larger and more vascular the gland the more readily can this mistake be made.

The most interesting thing in the disturbances of the heart in goiter is the fact that no real morbid pathological changes occur directly from the goiter itself or its secretions. The changes that take place must come either from direct stimulation of the heart muscle by the toxin or through action upon the vagus nerve or the sympathetic. The process must be one of stimulation and not of destruction. Were the toxin de-

*Read before the Section on Medicine, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

structive then we would have definite losses of the muscle of the heart with the impossible return of heart function to normal or nearly normal as occurs in the vast majority of toxic goiter cases after the offending portion of the thyroid is removed.

The basal metabolic rate is only a test that goes hand in hand with muscular activity. With the increase of activity of the myocardium there must of necessity be a corresponding increase of oxygen consumption. The tremor is a similar manifestation of muscular stimulation. In the large majority of cases the hyperfunction of the myocardium and the rapid tremor of the skeletal muscle are concomitant in development.

We know from wide experience that, in an uncomplicated goiter case, the heart assumes little if any enlargement; that the size and the shape and the position of the heart corresponds with the topography of the body. In other words, if the patient is a long slender chested individual with a narrow sternum, the rather asthenic type, you will find the small narrow heart. Or, if he is the short chested, heavy set individual with a wide sternum, he will have a much larger transverse diameter of the heart and a larger base. And between these you will find every degree of size, position and shape.

In watching these hearts with toxic goiter under the fluoroscope you will find the same degrees of increased contraction of the heart muscle regardless of its size. In other words, the muscle fibers themselves apparently undergo a greater degree of contraction. Now does this contraction come from the irritation of the heart muscle or does it come from nerve stimulation?

It is a positive fact that with the electrocardiogram in toxic types the contraction in the sinus node starts and develops upon its contraction before the previous systole of the ventricle has been completed. This takes place in the mildly toxic type of goiter as well as in the more severe types previous to the time that there is any change in rhythm or regularity of the heart.

After the removal of the diseased portion of the thyroid the heart again goes back to its normal contraction. In other words, the P wave of the electrocardiogram does not develop until after the completion of the T wave.

One of the most important things is not only to recognize the end results of a goiter upon the

heart but to be able to know it in the milder forms of goiter intoxication. Where we have the early tachycardia with slight changes in blood pressure, the latter is of the utmost importance. Changes in blood pressure are concerned in various ways in which the pulse pressure may be increased. Generally there is a slight increase of 4 to 10 m.m. in the systolic and a decrease of from 2 to 6 in the diastolic. Some of them retaining a normal systolic but a drop in the diastolic of about 10 m.m. aids greatly in making a diagnosis of goiter toxicity. A smaller per cent in the earlier stages have an increased systolic with no change in the diastolic but apparently in the majority of cases there is the endeavor upon the part of the body mechanism to compensate in such a way that less load is thrown upon the organ or system most vitally involved. In other words if the heart is forced to do a greater amount of work due to both increased rate and increased contractions then the peripheral resistance is lessened. This is especially true of exophthalmic goiter where it is often impossible to get a diastolic reading.

The outstanding observation made in the adenomatous type of cases is the evanescence of symptoms that give a history of yesterday having marked tachycardia, palpitation and shortness of breath, today they feel better, their blood pressure is normal and pulse rate is probably near normal. Tomorrow they again may have their more severe symptoms. It is very advisable with these patients not to diagnose neurosis or neurocirculatory asthenia from the symptoms which the irritable heart causes. We find that the majority of these patients come up to see their Doctor on the days that they feel better. This type of goiter may go on for years without any progression or retrogression of symptoms.

These symptoms are more typical of the adenomatous type than any other type; the exophthalmic patients having more constant subjective and objective symptoms. We have frequently observed that these periods of toxicity would go hand in hand with the size of the adenoma, that is when the adenoma was larger and apparently more active in its secretion the symptoms were present, that when the adenoma became smaller and sometimes not palpable that the symptoms disappear. With the passing of time the tendency is present toward the development of a

permanent high pulse pressure, this being more consistent than the tachycardia. Occasionally these patients apparently undergo an apparent cure without any cause whatsoever.

In the type that follows an acute attack of influenza the thyroid involvement is generally more severe, the tachycardia, palpitation and pulse pressure showing more definite changes. The progress is more acute, where it is not at all unusual to see a complete disappearance of the diastolic reading, the systolic pressure may run up to about 180 or 190 and sometimes over 200 where just a few weeks before it had been normal. This type gives the definite electrocardiographic change, the fluoroscopic changes of size being absent or out of all proportion to the other findings. The hearts in these cases return almost to normal in almost 48 hours following operation. These types of cases if let go develop auricular fibrillation early.

In attempting to understand the activity of the thyroid upon the heart we go back to statements of physiologists. It is sometimes very hard to correlate the action of the heart in goiter with properties of heart muscle as given by physiologists.

For instance, Howell states, "The contraction of the heart muscles are always maximal; that whatever may be the condition of the muscle at any given movement, its contraction in response to artificial stimulation is maximal for that condition."

However, if this is true, then there must be definite changes in heart muscle in toxic goiter conditions; perhaps only in the chemistry of the muscle; because heart muscle has an increased contractability as is shown in the electrocardiograph, by the fluoroscope and by blood pressure. In other words, as the physiologists state, regardless of the amount of electrical stimulation applied, the heart muscle will only contract a maximum, depending upon the condition of the heart at that time. The variation of contraction therefore depends upon the condition of the muscle. Perhaps this is due to chemical changes in the muscle improving the nutrition or permitting an increase of oxidation.

We again come to another property, the refractory period of the heart. That is that during the period of systole an electrical stimulation has no effect.

We are now brought face to face with the electrocardiograph reading in which the more severe the toxemia from the thyroid the earlier develops the contraction in the sino-auricular node before the complete contraction of the ventricle. To me it is something as yet unexplained, unless we accept the fact that the auricles being in diastole take up this early stimulation from the sino-auricular node. This would negative the theory of the refractory period. Both of these conditions would seem to substantiate the fact that the toxins of goiter do produce changes within the heart muscle and apparently must be of purely chemical nature without structural changes.

The statement is frequently made that digitalis has no effect upon the goiter heart, to this I cannot help but make a firm objection because in the vast majority of cases we are able to slow the pulse and the heart becomes stronger with lower pulse pressure when the patient becomes digitalized. Of course there are some patients in whom we do not get a digitalis action but we must also remember in heart cases regardless of the etiology that we have our failures of digitalization. Some individuals are refractory to digitalis.

It is our experience that if we digitalize an auricular fibrillation and obtain a regular rate and rhythm previous to the operation and maintain it that way for about one to two weeks that we are less liable to have the embolic accidents that follow restoration of normal rate and rhythm than by getting this normal rate by thyroidectomy. When the auricular fibrillation has been of long standing over a period 2, 3 or more years we seldom get a restoration to normal either with digitalis or with the operation, nevertheless the patient has a marked improvement in breathing and in subjective symptoms referable to the heart.

At the end of forty-eight hours following operation the heart rate drops to normal and remains there, the pulse pressure drops rapidly and the heart is apparently not in fatigue because the reserve force of the heart is soon built up. It is not necessary to keep these patients in bed after the first few days. In fact it is better in most cases to get them back into some interesting though not strenuous occupation as prolonged

rest in bed tends to develop a neurosis in these patients.

Organic changes do take place in the heart when the goiter is large enough to produce pressure upon the superior vena cava; producing in its mildest obstruction a slight increase collateral circulation upon the veins of the chest wall and in the neck; with edema and cyanosis of the neck which is generally more pronounced in the recumbent position than in the upright. In fact, most of these patients say that they have much greater relief when sitting up. By bending forward, even in many of the severe cases, the edema of the neck disappears producing an intermittent collar of Stokes.

This congestion apparently produces a back pressure resulting in increased resistance to the flow of the blood from left ventricle and auricle, producing an enlargement of the heart downward and outward to the left. This undoubtedly is a true hypertrophy, because after removal of intrathoracic goiter with great improvement of symptoms the size of the heart persists. The asthma present in so many of these cases is undoubtedly due to pressure either upon nerves or to increased intrathoracic pressure because of instantaneous disappearance of wheezing following removal of the intrathoracic thyroid. We have seen some cases where the pressure was upon the subclavian artery with edema of the right arm.

The peculiar thing is the development of a heart condition in the hypothyroid. We have also the shortness of breath and the dyspnea. You may have either bradycardia or tachycardia. In either case there is a distinct enlargement in the size and shape of the heart.

The blood pressure is characterized by decreased pulse pressure being out of all proportion to the size of the heart. In fact it is in almost inverse ratio; the greater the increase in size, the weaker the heart action.

Thyroid medication is specific. The heart decreases in size, the blood pressure goes to normal or little above normal; the pulse rate tends to go back to normal and the dyspnea is greatly relieved. In occasional cases seen, thyroid medication can be discontinue, especially in the milder types with permanent improvement. In the typical cretin or severe myxedema, it must be given continuously.

DISCUSSION

Dr. David C. Straus, Chicago: Before taking up the discussion of the interesting paper of Dr. Deneen, I wish to state that I am not an internist, but a surgeon. Dr. Hamburger, who was to open the discussion, is out of the city, but he and I have been on the goiter group at the Michael Reese Hospital handling all the service cases at that institution since 1924, and so I am familiar with our cases. I have no idea what he might have wished to say, but I wish to discuss the subject from the standpoint of the surgeon. While I agree with most of what Dr. Deneen said, I am not sure I understood what he said about cardiac dilatation.

I believe there are a large group of cases every year treated as cardiac cases in which the heart condition is secondary to a toxic goiter, but in which the correct diagnosis is not made because the usual symptoms of hyperthyroidism are not marked, and the thyroid gland may be of normal size.

There is also a group of cardiac cases in which the cardiac pathology is primary, but in which an associated toxic goiter is present and the hyperthyroidism markedly interferes with obtaining a satisfactory result by medical means alone. In these cases surgery is indicated.

For these reasons, I believe every cardiac case should be looked upon as a possible goiter case, and every heart case should have a basal metabolic rate taken, and more than one.

I wish to mention two cases which confirm what Dr. Deneen said about the possibility of a toxin from the thyroid being a cause of auricular fibrillation. We recently had two cases in point at the Michael Reese Hospital.

The one case was a frank case of toxic goiter with fibrillation. In spite of several weeks of bed rest and medical treatment under Dr. Hamburger's care, using digitalis until the patient was digitalized, and then later using quinidine, the fibrillation persisted. Finally, Dr. Hamburger discussed surgery in spite of the persistent fibrillation, and we decided that operation was safe and I performed a subtotal thyroidectomy in one stage. The fibrillation ceased the same day and never returned.

The other case, a patient with myxedema, on Dr. Hamburger's service, was being treated with thyroid extract in increasing doses. She never fibrillated until the dose reached 15 grains of thyroid extract, when fibrillation began. The dose was promptly decreased, and the fibrillation promptly ceased.

These two cases show the close relation of thyroxin and fibrillation. Thyroid cases, with associated heart disease, stand operation relatively well and surgery can be undertaken even when a certain amount of cardiac decompensation exists.

The last case I wish to mention is that of a woman, 56 years of age, at present in the hospital. I operated on her daughter-in-law several years ago for a common duct stone with choangitis. The daughter-in-law called me one day, several weeks

ago, asking me to come and see her mother-in-law who she said was having trouble with her gall bladder. She was very familiar with the typical symptoms of indigestion, belching, pain radiating to the shoulder, etc. The patient recently had had the flu. When I saw her she undoubtedly did have gall bladder disease, but what was more important, she had a dilated heart that reached to the anterior axillary line. She was emaciated but at the time I attributed her loss of weight to her failure to eat, due to the distress food caused her. I digitalized her and as soon as she could be safely moved, had her enter the hospital. I suspected a possible goiter, as she was nervous and had a stare and consequently had a basal metabolic rate taken. It was +77! It was then at once obvious that while the patient did have gall bladder disease, it was of less importance than her heart condition, and that the heart condition could only be cured by operating on her thyroid gland as soon as she could be gotten in suitable condition by means of iodine and digitalis. This case only emphasizes again that every heart case must be studied as a possible goiter case. In conclusion, I wish to mention that in such a case as this last one, where a toxic goiter co-exists with a diseased gall bladder, the gall bladder should not be operated on until after the goiter has been removed. Of course one might have to operate on a gall bladder first if it presented an urgent indication, as rupture, but one should otherwise always operate on the thyroid primarily, removing the gall bladder later, as a local focus of infection, which should never be allowed to remain in patients who suffer from toxic disease of the thyroid.

Dr. Deneen: What I meant by dilatation is that except when the goiter patient goes into extremis, you do not get a dilatation. Of course, when a goiter is bad and the hyperpyrexia develops, sometimes a hundred and four and a hundred and five, you will get a dilatation there. I believe the temperature is possibly responsible for the dilatation because the temperature is undoubtedly going to bring on a cloudy swelling. I do not believe the dilatation takes place in the ordinary goiter heart.

The size of the thyroid has no relationship to toxicity. A small thyroid can be much more toxic than the large ones and I believe frequently is. Most of our extremely severe cases of thyroid are in the very small types and sometimes a very small adenoma.

When you are dealing with a thyroid in which the heart condition is due to some other cause, such as rheumatic heart or a hypertension heart, of course it is necessary that the patient be gotten in condition as soon as possible and operate, because that heart will not get its full improvement until that thyroid is ceasing to damage the heart.

The basal metabolic rate is of value but amounts to nothing compared with your bedside symptoms. It is what you men go into the home and see, out in the country and see that is the most important thing in a thyroid case. Of course with us the

majority of heart cases are due to thyroid. Naturally we see more of that type than we do of the rheumatic types or syphilitic type. Right now, of course, we are getting a preponderance of streptococcus heart from the present epidemic, but taking it year in and year out, I believe that in central Illinois now there are more goiter hearts than any one type of heart.

Regardless of your basal rate, depend upon the clinical symptoms of the thyroid because, as Dr. Stieglitz pointed out, in your blood chemistry, in your basal rate, you are liable to many errors because we must remember that all our mechanical and laboratory errors are full of variables with very few constants.

Your operative risk depends upon the judgment of the man examining the heart. Auricular fibrillation is not a contrary indication to operation when the auricular fibrillation is due to thyro-toxicosis, because the auricular fibrillation of a thyroid is not the same proposition that you have with mitral-stenosis auricular fibrillation. The main thing is to remember that all through your goiter work and in encountering a goiter, the invalidism of the goiter patient is due to the heart. If it were not for the heart, the patient would manage to get along and do his normal daily routine. Always remember in checking up upon a goiter that the one important thing is to check up upon the heart.

METASTATIC ABSCESES

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WINNETKA, ILL.

Patient A. H., aged sixteen years, was admitted to the Evanston Hospital on Nov. 11, 1927. While playing football five weeks previously, the patient had sustained a subluxation of the left sterno-clavicular joint. Two weeks previous to admission the patient developed a boil on the left elbow. One week later following a slight re-injury of the original affliction, the patient began to have swelling of the left side of his neck.

For the four days previous to admission the patient was confined to bed with fever, pain and stiffness of neck, vomiting, and headache. On the day of admission there was very marked swelling of the left side of the neck from below the clavicle to the mastoid process. This area was tender and red, and there was rigidity of the sterno-mastoid muscle. There was difficulty in opening the mouth, and in swallowing. There was some hoarseness and a little dispnea. The furuncle of the elbow was still inflamed and discharging. The urine was negative save for a trace of albumin. The white blood count

was 15,600. The temperature was 103.2 and the pulse 100 to 120.

Under ether anesthesia a long incision was made at the mesial border of the sterno-mastoid. After a somewhat prolonged and careful dissection the abscess cavity was broken into behind the sterno-mastoid and the clavicle. This cavity pointed upward along the carotid sheath, laterally under the sterno-mastoid, and somewhat downward toward the mediastinum. It was necessary to make several counter incisions on the lateral side of the sterno-mastoid in order to drain the carotid and post-sterno-mastoid pockets. Five rubber drains were used. Wet boric dressings were applied to the elbow. Culture of the abscess pus showed hemolytic staphylococcus albus. The temperature fell to normal in less than forty-eight hours, and the patient was discharged from the hospital on the seventh day.

After a several weeks of dressing the wounds healed nicely. In this case it was felt that the organism of the boil metastasized to the site of the injury and there formed an abscess.

Patient B. A.—Admitted to the Evanston Hospital on Feb. 13, 1928. Five days previously he had sustained a small laceration of the thenar eminence of his left hand. This wound was considered trivial, was given but slight attention by the patient.

Two days later the patient fell from his bicycle and in so doing, caught his left arm under the handle-bars, and wrenched his left shoulder. The strain was slight and the patient thinking little of it, went on riding his bicycle.

The day following the accident, the patient had discomfort in his left shoulder and a temperature of 100. The ministrations of an osteopath were ineffectual and, after a restless night, the patient was first seen by the writer.

The temperature on admission was 102.6 degrees, the pulse 96, respiration 36. The entire left pectoral and supra clavicular regions were markedly swollen, tender, and somewhat red. The patient was able to abduct and rotate the arm but slightly and only with considerable pain. The small wound of the thenar eminence was red, open, and discharging. The white count was 22,800. X-ray showed no fracture involving the shoulder. While it was deemed that there was infection beneath or in the pectoral muscles, the diffuse character of the swelling seemed to indicate delay for further localization.

Accordingly, continuous hot fomentations were started. The daily white counts for the next four days were 22,650; 14,400; 15,000; and 18,450 respectively. Five days after admission the localization was more definite, and operation was determined upon.

Under ethylene anesthesia on Feb. 18, 1928, a five inch incision was made parallel to the fibres of the pectoralis major muscle. The fibres of this muscle and those of the pectoralis minor were di-

vulsed and a large abscess was broken into. This was drained with Penrose tubing and small rubber tubes. One of the latter was passed through a counter drain opening below the border of the pectoralis major. The temperature gradually subsided, and the patient was discharged from the hospital eight days after operation and came to the office for further dressings. The wound granulated in and healed nicely in about three weeks.

In this case it was felt that the organisms which entered at the small wound on the hand had metastasized to the "*locus resistentie minorae*"—in this case a torn muscle fibre of the pectoralis minor.

Under certain circumstances pathogenic bacteria may escape from a focus of infection in the body and appear in the general blood stream. There can be no doubt that traumatism plays a role in the escape of the bacteria through the defensive barrier by which the body has surrounded the focus of infection. Squeezing a boil, ill advised or premature incision, incision with a dull instrument, or unnecessary manipulation after incision are to be avoided. There may be dissemination of bacteria without demonstrable trauma. Once in the blood stream, the bacteria are largely destroyed. Some, however, which escape destruction may find a favorable environment, lodge there, grow, and in turn cast out in the blood stream increasing numbers of bacteria (Meleney¹).

If the focus from which the bacteria have originated be adequately drained, the mere finding of bacteria in the blood stream has not a grave prognosis (Martin²).

The lodgment of bacteria in distant parts of the body may be mechanical. Embolic bacterial masses may plug an arteriole or a capillary. (Martin.³) In this class are the cases of metastatic lower abscesses from infections drained by the hemorrhoidal veins. The bacteria may escape by the lymphatics and be captured at the nearest lymphnode.

There they may be overcome or they may propagate and go on to suppuration, as for example the auxilliary abscess following an infected finger. Pyemic or embolic abscesses are usually multiple (Leonard Freeman⁴).

The subject of metastatic abscesses has long interested physicians. In the first series of the

Surgeon General's Catalogue appear some fifty-three articles under this caption and includes an original thesis from Heidelberg dated 1759. The Second Surgeon General's Series lists but seven articles and the Third Series does not have a heading on metastatic abscesses. In 1916 Nulls and Sowell⁵ reported a case of tonsillitis from which staphylococcus albus was obtained. Seven days later the patient had a pyelitis and cystitis, and three weeks later an abscess of the foot was opened and the pus from this gave staphylococcus in culture.

Phemister has called attention to pre-existing cutaneous infections in osteomyelitis. In 1922 Kretschmer reported cases in which there were staphylococcus infections of the kidney secondary to felons and neck carbuncles. These cases were characterized by fever, leucocytosis, localized tenderness, and occasionally by a normal urine.

The kidney, which had the gross appearance of a carbuncle, generally was removed.

Recent reports of metastatic perinephritic abscesses have been frequent. Schnitzler¹¹ reported fourteen cases of perinephritic abscess in nine who had furunculosis immediately preceding the first symptoms.

One patient with a practically healed furuncle of the thumb developed a perinephritic abscess after prolonged carrying of a knapsack chiefly on the affected side. Another case, an elderly gentleman with a practically healed furuncle on the back of his neck, stumbled while crossing the street, and only by severe muscular strain avoided falling. Perinephritis developed. Schnitzler thinks trauma induced the perinephritis. In 1922 Blesh reported two cases.

In the first the primary infection was a thumb infection which had been drained three weeks previously, and in the second a furuncle of the face. Incision in both cases revealed perinephritic abscesses. Nieuwejaar⁸ reported six cases with surgical treatment and states that in seventy-four cases collected from the literature there were two deaths.

Salleras⁹ reported a case in which three days after incision of a phlegmon of the hand, the fever reappeared and there was pain and tenderness in the lumbar region. The urine was normal. Incision revealed a large perinephritic abscess. This author quotes Albarran who believes

that trauma is a factor in the localization of phlegmons around the kidney.

A most interesting case is that of Schafer's.¹⁰ On May 13, there was an operation for fistula-in-ano which was followed by the daily passage of bougies to insure the dilation of the anus. On Aug. 14, the patient was readmitted with a diagnosis of cerebral thrombosis and died on Aug. 26. The post mortem showed an abscess cavity 2.5x5 cm. in the right fronto-motor area lined with greenish pus and filled with a foul-smelling liquid. Culture of this pus showed *colon bacilli* and streptococci. This writer states that the majority of metastatic brain abscesses are secondary to purulent infections in the thoracic cavity, although whitlow, tonsillar abscess and suppurative adenitis are responsible for some.

Asman¹² reported a severe case of ischio-rectal abscess. About a week after operation multiple abscesses began to develop. These involved both hands and the left elbow joint. Multiple incisions were required for drainage. The two cases reported in the present communications are of particular interest as the metastatic abscesses definitely arose at the site of a traumatism. The hemorrhage incident to the trauma seems to constitute the favorable environment or soil, and may correctly be termed the "locus resistencie minorae."

The writer believes that the likelihood of metastasis from cutaneous infections is less if the latter are not subjected to traumatism. The injudicious squeezing of boils to express pus, the premature incision of an infected area before localization has been completed, and even the incision of a definite abscess cavity with a dull knife, are the potential causes of serious trouble. Not only may the infection be spread to a larger contiguous area, but may even be made to metastasize.

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THE TREATMENT OF HEMOLYTIC STREPTOCOCCUS SEPTICEMIA*

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DECATUR, ILL.

For many years patients developing a hemolytic streptococcus septicemia were considered as hopeless, and an unfavorable prognosis was always given, which usually proved to be the correct one. In 1919, Hugh Young¹ announced the preparation of a new germicide, called mercurochrome 220 soluble. Its use at first was limited to the genito-urinary tract, but was gradually extended until in 1924 Young² reported enthusiastically on the results of the intravenous use of mercurochrome in general and local infections. In 1925 he³ reported a series of cases he had collected from various parts of the country, including several hemolytic streptococcus septicemias which had recovered following the intravenous use of mercurochrome. He recommended comparatively large doses, namely 5 mgm. per kilogram of body weight.

The advent of mercurochrome in the treatment of infections certainly has been of great value. However, the intravenous use is not without its dangers. Symptoms of mercurial poisoning and shock followed by death have been repeatedly reported. Several cases in our own hospital ended fatally shortly after intravenous injections of mercurochrome in doses which were considered to be within normal limits. A special committee, appointed by the Therapeutic Research Committee of the Council on Pharmacy and Chemistry, in their report on the status of intravenous therapy published in the *Journal of A. M. A.* of March 10, 1928, quote one of Piper's⁴ remarks in discussing the intravenous use of mercurochrome: "We cannot too strongly impress on the profession that in spite of reports of brilliant recoveries, this is undoubtedly a dangerous procedure, and is warranted only by the severity of the condition with which we are confronted." Repeated small doses have been used with great success, and on the whole this procedure is by far the safest. I have used doses of from 2 to 5 cc. of a 1 per cent. solution, repeated daily or less often, depending on the reaction

and the temperature, without any untoward symptoms.

In the treatment of a hemolytic streptococcus septicemia, repeated blood transfusions I think are of the greatest value, especially when the generalized infection is associated with hemorrhage. The blood becomes more or less hemolized, and the repeated transfusion of 5 to 600 cc of normal blood, until the blood stream has been rendered sterile and the hemolysis has ceased, is of greatest importance. This procedure of adding normal blood in place of hemolized blood, sustains the patient until the blood stream is rendered sterile and the infection checked. It also is a most important factor in stopping hemorrhage.

There is one other phase in the treatment of this condition which seems to me to have great possibilities, and which has not been greatly stressed in the recent literature. I am referring to the use of the bacteriophage. In 1921 d'Herelle⁵ announced the discovery of the bacteriophage, and demonstrated it as a factor in the recovery from infectious diseases. He claims that the bacteriophage is an ultra-microscopic, filter-passing virus, which parasitizes the bacterium, not only causing its death, but completely lysing the bacterial cell. It may be obtained from sewage filtrate, feces filtrate, old cultures, blood, tissue exudates, etc., and is injected subcutaneously or intravenously, and also used locally at the site of the original infection. Most striking results have been obtained in our hospital by the use of the bacteriophage in colon bacillus infections, especially in chronic systitis cases which had resisted all other methods of treatment. So far, however, Mr. B. E. Gay, who has been obtaining the phage for us in our cases, has not been successful in obtaining it in streptococcus infections. That this is possible however, has been demonstrated by Dutton⁶ and other laboratory workers. Dutton reports several cases of hemolytic streptococcus septicemia in which the bacteriophage was obtained and used subcutaneously, intravenously and locally without any other form of treatment, with complete recovery.

d'Herelle believes that patients with severe infections recover if the bacteriophage is developed sufficiently in their blood to overcome the

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bacterial invasion even though the patient is untreated. If the phage is not present, or present in insufficient quantity, the patient will succumb no matter what is done for him. If this theory is correct, the addition of bacteriophage recovered from the patient's blood or excretions, given subcutaneously or intravenously, would effect a cure, whereas all other methods might fail. At least the results obtained so far with the bacteriophage in certain infections are very encouraging, and offer great possibilities in infections for which, up to the present time, no specifics have been found. It is a field which should be thoroughly investigated, and it is with the hope that more work along this line be done that this paper is written.

I should like to report briefly a case of hemolytic streptococcus septicemia which recovered after repeated blood transfusions and two small doses of mercurochrome intravenously.

On May 26, 1927, I was called in consultation to a small town south of Decatur to see a young man 23 years old who ten days previously had knelt on a thumb tack, the tack having pierced the skin over the left patella. When I saw him he had marked swelling, redness, and tenderness of the entire left leg, but especially about the knee joint, and a septic temperature. I aspirated the knee joint but did not obtain pus. I then aspirated the supra-patellar bursa and obtained a medium amount of sero pus. The bursa was incised and packed with gauze, a considerable amount of oozing taking place. The next day I was called back because of continued oozing from the wound. His temperature was lower and his general condition seemed better. He had lost quite a bit of blood, but the bleeding had stopped. The next day I was called again because of an increase in temperature. I aspirated the knee joint again and again obtained no pus. I diagnosed a septicemia, probably streptococcic, and advised his removal to a Decatur hospital. He had continued to ooze off and on from the supra-patellar incision in spite of repacking.

Upon his arrival at the hospital I aspirated his knee joint again, and this time obtained sero pus, which showed a hemolytic strep on culture. Blood taken for culture revealed the same organism. His condition was poor, so on May 31 he

was given a transfusion of 600 cc of blood by the Percy tube method, and the knee joint opened up and drained through an internal lateral incision. I intended making an incision into the joint on the opposite side also, but his condition became so poor that I had to content myself with the one incision. He bled freely from this incision, and continued to do so off and on. He gave the history of being a bleeder, and of having two brothers and one uncle who were bleeders. However, both his coagulation and bleeding time were normal. His blood showed 2,970,000 reds, 28,700 white and a hemoglobin of 55 per cent. on entrance. He was given thromboplastin, hemoplastin, calcium lactate, ceanothyn, and his wound was packed and repacked time and time again with gauze saturated with ephedrine and also adrenalin to stop the bleeding, with no effect. He also was given anti-streptococcus serum. Attempts were made to catch the oozing points along the skin margin with forceps, with apparent temporary success, but the bleeding points appeared from time to time due to the sloughing of the tissues. His blood caused complete hemolysis of blood agar plates in a very short time. An attempt was made to recover the bacteriophage from the blood, but we were unsuccessful, probably due to the fact that our filters leaked.

On June 1, 4 cc of a 1 per cent. mercurochrome solution was given intravenously, and this was repeated on the following day with no apparent effect on the temperature or the bleeding. The daily temperature varied between 99 and 103 degrees. June 3 he was pulseless and moribund from loss of blood. I prepared to transfuse him, but was afraid he would die before we could get the blood into him. However, we did give him 600 cc of blood, and he immediately began to rally, and the bleeding stopped. The blood count on June 4 after the second transfusion was 2,230,000 reds, 29,800 whites and 45 per cent. hemoglobin. His general condition continued to improve, so that no more mercurochrome was given. On June 6 a blood culture was negative, and a third blood transfusion was given on June 8, which was followed by a slight chill and an increase in temperature. A fourth transfusion was given June 13, followed by a more thorough drainage of the knee joint.

June 14 the red count was 2,410,000, hemoglobin 50 per cent., and white count 12,300. A blood culture taken on the 14th was again negative. He continued running a septic temperature, however, and on June 25 a large abscess behind the femur in the middle of the thigh and communicating with the knee joint, was opened up and drained. The temperature then very gradually decreased, but did not become normal for several weeks.

On July 18 the red count was 3,660,000, hemoglobin 70 per cent. and leucocyte count 6,400. We attempted to institute some motion in the knee joint at this time, but in this were unsuccessful because of the severe pain which the slightest movement caused, due to erosion of the cartilaginous surfaces of the joint, as revealed by x-ray. The pain in the knee and foot was so severe that extension had to be applied to the leg to separate the joint surfaces. This procedure relieved the pain.

July 30 the red count was 4,350,000, hemoglobin 80 per cent. and leucocyte count 7,400. He continued to improve slowly and was discharged from the hospital on November 11, his incisions all healed with the exception of a small sinus extending to the middle of the thigh behind the femur, which subsequently closed following injections into it with Becks' paste. Unfortunately he has a stiff knee joint with bony ankylosis, due to the fact that we were unable to obtain early sufficient drainage of the joint on account of the persistent hemorrhages caused by the hemolysis of his blood. I am trying now to persuade him to submit to an arthroplasty.

CONCLUSIONS

1. Repeated blood transfusions are of the greatest importance in hemolytic streptococcus septicemia, to sustain the patient until the blood becomes sterile and hemolysis ceases.

2. Small repeated doses of mercurochrome may be of value in sterilizing the blood stream. Large doses have proven dangerous and may produce a fatal termination.

3. The work on bacteriophage offers great possibilities in the successful treatment of these infections. We hope that more work will be done with the bacteriophage and that the clinicians of today will recognize its possible value in

the treatment of hemolytic streptococcus septicemia and other infections.

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THE DEADLY UPPER LIP INFECTION*

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QUINCY, ILL.

Until one comes face to face with a fatality, the result of simple infection of the upper lip, one is apt to underestimate the possibilities connected with such a simple lesion, and to regard it as an innocent affair. Thirty years ago I saw my first case. A woman, middle aged, in good health, developed a little pimple on her upper lip; the next day I incised it; the following day she developed an infarct in her right lung; the fourth day she was dead. In my ignorance I attributed the cause of death to malignant pustule, though looking back I now know there were no characteristics of that malignant condition visible. Three years later I saw another case of the same type. This woman was 61 years old. She had been applying different salves and poultices to her lip, and at the time I saw her the parts were swollen to enormous proportions; the left cheek and eye were swollen, and she was delirious. I again incised the lip; the next day the woman was dead. I now became thoroughly alarmed and tried to find out from the literature at my command just why these women had died, and outside of the fact that an older practitioner, with whom I spoke about this condition, considered that upper lip infections were always dangerous, I could not ascertain any data as to the why and wherefore of these deaths. Three years

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ago I was called to see a man, aged 54, in extremis; he was delirious, his temperature was 105.4; pulse 160; his upper lip was terribly swollen as was the cheek and nose, eyelids and forehead; there was an incised wound in the upper lip from which nothing but a little bloody serum had exuded; the margins of the incision showed little plugs of pus protruding from the tissues, giving the appearance of a carbuncle. His family physician had incised the lip the previous day. He died the same night I saw him. A post mortem was denied. This experience, I am sure, can be duplicated by most anyone having practiced medicine for any length of time. Aside from these fatal cases I have seen numerous instances of infections of this kind which recovered under simple conservative measures of treatment, but in every case it has been my practice to explain to the patient the seriousness of the condition, in order to get their active cooperation in the insistence upon a "noli me tangere" method of treatment. The fatal results in so many of these infections come so unexpectedly that they are more than ordinarily tragic in their effect both upon the medical attendant and the family.

Not many papers have been written on this subject. In an extensive search I find that possibly not more than two dozen papers have found their way into European and American literature. Walton Martin, in a paper written in 1922, gives a very exhaustive review of the literature to date. The earliest of these was written by Reverdin in 1870 while Lenhartz, Rosenbach, Dorst in Germany; Lanz of Holland; Poirier, Charpy. Tavernier of France; Harvey Rudlow, Thomas Smith, Walters, Coombe and Solly of England and Dwight, Germain, Engel and Charles H. Frazier in America followed at intervals between 1870 and the present time. All of these papers stress the importance of extreme care in the management, a very guarded prognosis and a great deal of speculation as to the cause of the malignancy.

It seems that from the earliest time the etiology has been very uncertain. Why should an apparently simple lesion in this location produce such tragic effects, while in other parts of the body, infections of much greater extent go off Scott-free? Why should the accepted standard surgical treatment of this lesion be so radically different from that which pertains to all other

infections of the body? In the main, it seems to be the consensus of opinion that there are four reasons for this condition of affairs: first, the anatomical make up of the parts involved; second, a trauma; third, absence of physiologic rest; fourth, the facility for rapid multiplication of organisms.

In most every part of the body the skin rests upon a superficial fascia that separates it from the deeper structures, and which gives room for expansion when fluids accumulate underneath the skin. In the upper lip and nose the fibers of the facial muscles are inserted directly into the skin. These fibers run in all directions. First of all, the orbicularis oris, some of whose fibers run in a circular direction round the mouth, while others are directed obliquely from the circumference toward the lip margin and toward the mucosa.

Next, the fibers of the levators of the lip, running in a vertical and oblique direction, downward, outward and inward. The blood supply of these parts is very extensive, as well as the lymphatic supply. These blood vessels run in between the delicate fibers of the facial muscles and the least motion or contraction of these fibers causes a temporary local disturbance in the blood supply. The whole field, therefore is divided into a number of very small cavities separated from one another by these little fibers, and having little or no communication with each other. The spaces between the cells forming the terminals of the capillaries and the beginning of the veins are easily compressed by these little fibers, and as a consequence, foreign material is more easily pressed into the venous channels. It may be seen at once that incision of this structure will only cause the opening up of the little cavities through which the knife blade has actually passed, and that there is no chance for adjacent cavities to communicate with this line of incision. On the other hand, the trauma produced by the incision, particularly if the knife is not very sharp, causes a pressure on the entire structure and tends to still further increase the pressure in the venules. Once the vein walls have become infected, phlebitis develops followed by thrombophlebitis. It is a well known fact that the veins of the upper lip empty into the anterior facial vein through the superior labial vein and from there into the angular which latter

again empties into the superior ophthalmic. This vein empties directly into the cavernous sinus. The venous blood from the upper lip may empty itself into the main trunk of the anterior facial which later on empties itself into the internal jugular vein. The venous blood from the nostril and the lower part of the lining of the nose is carried by a small vein through the foramen caecum at the root of the nasal spine of the frontal bone and just in front of the ethmoidal notch to the superior longitudinal sinus. We can now visualize four routes of infection: First, by means of the angular vein, superior ophthalmic vein into the cavernous sinus; second, by means of the main branch of the anterior facial to the internal jugular vein and from there to the heart and lungs; third, by means of the small nasal vein through the foramen caecum into the longitudinal sinus, then into the lateral sinus causing a thrombophlebitis of the lateral sinus and eventually a thrombosis into the internal jugular vein; fourth, infection of the general blood stream by direct extension of the cellulitis and lymphangitis.

The second factor in the causation of this condition is undoubtedly trauma produced by the patient himself in the early stages by the process of picking and squeezing the little pimple.

The third factor is the absence of physiologic rest to the part. The continual use of the lip in talking and taking nourishment produces a pressure in the lip substance which is conducive to pressure of infective material into the little veins.

The fourth factor which constitutes the facilities for rapid multiplication of organisms in this part of the body, is due to the fact that owing to the limited space, infiltration of round cells and extravasation of white cells is limited so that a very weak wall of leukocytes is thrown out to protect the general system from the local infection. The organism in most cases has been found to be *Staphylococcus aureus*; as is well known, this organism is not very virulent but it seems that it may acquire a high degree of virulence in the process of multiplication of the bacteria in loco.

The onset of the infection is usually very deceptive. The symptoms are very mild; usually a little pimple makes its appearance on the upper lip where it can be noticed. The patient almost

involuntarily commences to pick the lesion, and adds further insult by squeezing the parts, so that he may as rapidly as possible rid himself of the unsightly lesion and thus the factor of trauma is added to the innocent looking lesion. The necessity of speaking and swallowing food causes the lip to press against the teeth and the gum, therefore adding still further trauma and in addition to the actions of the circular muscle around the mouth a process of suction is instituted by means of which the organism and the products of inflammation are sucked into the lymph spaces and small venules. Next the skin becomes dusky purple and the swelling spreads over the cheek and the naso-labial fold, even extending up into the eyelids and in the meantime the temperature rapidly rises. The absorption of some of the products of the inflammation causes chilly sensations; the patient becomes more restless and the lesion, as the swelling increases, becomes more painful. Depending upon the route the infection has taken, the symptoms will vary from now on. If the infection travels through the nasal lining membrane to the superior longitudinal sinus, soon the symptoms of meningitis make their appearance and that overshadows the picture until the end. Should it follow the course of the anterior facial vein, which it is very apt to do because of the absence of valves in this vein, then very likely the first outstanding symptoms will be chills, high temperature and the symptoms of embolism in the lung. Should the infection ascend by means of the angular vein to the superior ophthalmic vein, then a rapid involvement of the cavernous sinus, manifested by symptoms of cavernous sinus thrombosis consisting of muttering delirium, unconsciousness and meningitis will obtain. The end of this picture will be death due to toxemia overwhelming the higher centers and edema due to stoppage of the venous circulation at the base of the brain. Should the infection spread by contiguity causing a cellulitis and lymphangitis of the cheek, the lower lid, nose and forehead then we may expect an extension downward into the neck with involvement of the lymph glands and finally death due to general septicemia.

The treatment depends upon the recognition of the different factors causing the disease, as well as upon the recognition of the different route which the infection is following. It should

be laid down as a rule that all infections about the face should be treated in the beginning by abstinence of all radical methods of treatment. That first of all, the pernicious habit of trying to open and squeeze lesions of this kind should be warned against and that a plan of treatment should be adopted in the beginning which places the part as nearly as possible at physiologic rest, by prohibiting speaking and the use of solid foods to prevent the motion of mastication; the advocacy of liquid foods for the same reason and finally the application of some soothing, hot, moist application to relieve the patient's mind as well as to lessen the inflammatory condition of those parts. The application may consist of hot boric acid solution, the A. B. C. solution of Ochsner or 1:1000 solution of salicylic acid. Impress upon the mind of the patient the necessity of patience and the necessity of the "let alone policy." If in spite of this, the infection travels onward following the first route, that involving the superior longitudinal sinus, we are absolutely helpless to do anything. Should it follow the angular vein on its way to the cavernous sinus through the ophthalmic vein, which can be recognized by a red, round swelling up the grooves of the nose, then ligation of the vein just below the inner canthus, if done early enough, may stop the further progress of the disease and save the patient's life. Should it take the third route following the anterior facial vein on its way to the internal jugular, which again may be recognized by hardness and redness and swelling of this vein running toward the angle of the jaw, and particularly noticeable over the lower masseter, then ligation of this vein at the angle of the jaw together with ligation of the angular vein below the inner canthus may prove to be a life saving procedure. Should the disease progress by means of contiguity in the soft structure following the lymph routes toward the neck, early incision of the indurated tissue of the neck, together with hot applications may again save the patient.

It may be seen from these remarks that eternal vigilance in this condition is a "sine qua non." Nothing new has been presented in this paper but I feel the seriousness of this condition warrants the discussion of this subject over and over again so that it will be always thought of by every

practitioner and that the means for treatment may be at the finger's ends of everyone.

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DISCUSSION ON PAPERS OF DRS. ROOS AND JURGENS

Dr. R. C. Crain, Chicago: In furuncle of the upper lip the conflict between the staphylococcus aureus and the host is, as the essayist has stated, an entirely different picture to that of a similar invasion elsewhere in the body. This is largely true for two reasons: First, due to the absence of valves in the facial vein and its tributaries leading to the interior of the skull, blood can pass from the vein into the cranial cavity or vice versa with equal facility. Second, any inflammatory area on the face suffers early trauma. It seems to be the universal practice to squeeze any blemish as soon as it appears here.

In view of these facts it behooves us, as Dr. Jurgens has said, to be most conservative in our treatment and avoid all radical procedures. Every case must be individualized. No single method will suffice for all. The multiplicity of the various remedies that have been recommended during the past forty years only prove this. Some of these include constriction hyperemia, hot dressings, poultices, ointments, phenol probe, crucial incision, circuminjec-

tion of own blood, horse serum, autogenous vaccine, irradiation, cautery excision, and diathermy, and many more.

Perhaps the greatest comment has centered around the question of incision, when to incise, when not to incise, and how to incise. As long ago as 1896, Sir Frederick Treves in his system of surgery wisely cautioned against early incision in these cases, yet his remarks apparently fell on deaf ears. However, I think we have finally all come to feel that *if* incision is used it is *never indicated* before the stage of fluctuation. Along this line I have collected a few statistics:

1. In Bier's clinic it is said that the mortality rate for 182 cases of furuncle of the face was 8.2 per cent. and one-third of the fatal cases were upper lip infections.

2. Dittich found 22 of 40 cases of furuncle of the upper lip which were treated in incision had a mortality rate of 13.6 per cent., whereas in 18 cases not incised the mortality rate was 5.5 per cent.

3. At the Breslau clinic Melchior found 37 cases which were treated by incision had a mortality rate of 10.9 per cent., while 36 cases not incised had a mortality rate of 2.7 per cent.

4. Morrison mentions in the *British Surgical Journal* a paste of magnesium sulphate, with which he has treated 28 cases without a death.

5. Laewen, of the Marburg Clinic, tried injection of the patient's own blood around the area of induration, after crucial incision. This produces a powerful position chemotaxis, so that large numbers of leucocytes are mobilized immediately around the infected area and this leads to increased action of proteolytic ferments.

6. Carp, of New York, has tried circuminjection of blood without incision and noted quick relief from pain and prompt improvement.

7. Hamilton Bailey, of Birmingham, England, advocates hot moist dressings and circuminjection of the patient's blood.

My personal experience is less broad. I have treated a small series of cases with magnesium sulphate cream and it seems to decrease pain and hasten central necrosis. It is made by taking one and one-half pounds of very dry magnesium sulphate and mixing it in a warm mortar with eleven ounces of warm glycerine. This makes a very smooth, thick cream which is intensely hygroscopic. I apply it thick well beyond the margin of induration and repeat every twelve hours. At the end of this time the paste has formed a firm cake which is easily removed.

At Northwestern University Medical School we use hot moist boric acid dressings until there is fluctuation or spontaneous discharge and then a phenol probe. We believe that this treatment assists nature and at the same time does not in any way disturb the defensive leucocytic wall.

Regarding litigation of the facial vein, certainly this may save some lives when the defensive elements of the host are below normal. A sharp rise

in temperature is usually regarded as the prime indication. It can be done nicely with a local anesthetic but must be accomplished before edema has spread up to the inner canthus.

Dr. E. H. Ochsner, Chicago: I think Dr. Jurgens is entitled to a great deal of credit for the courage he has shown in presenting this paper and also for the scientific manner in which he has presented it. Very few of us are willing to tell of our failures though most of us are willing to tell of our ninety-nine per cent. successes. Fortunately, some thirty years ago I knew of three deaths in one year under the care of one of Chicago's most prominent surgeons following simple furuncle of the nose, of the inner surface of the nose around one of the hairs of the nose. This surgeon had incised all three of these furuncles and all three patients promptly died. They died for the reason mentioned in the paper, that the drainage is too direct. There is no obstruction to the drainage through the veins and there are practically no lymph nodes to prevent the infection from going directly into the circulation. That is one of the reasons why these nose and upper lip infections are so fatal. The surgery is too vigorous and too early. Both of the gentlemen have mentioned that—the danger of early incision. It is surprising how long it takes most men to learn that fact. Both of these gentlemen emphasized the fact that there should be no interference until there is a strong wall of leucocytes all around it. Then if there is any incision it must be absolutely within the wall of leucocytes, as Dr. Crain suggests. Treves in his great book on surgery emphasized the fact and it is surprising, as Dr. Crain has said, how few surgeons have taken his warning and heeded it. If the pain is so severe that the patient insists on some remedy, a remedy that I have found very valuable is to take a fine hypodermic needle and inject one or two drops of ninety-five per cent. carbolic acid. That stops the pain almost instantly and it also kills off a great number bacteria and coagulates the tissues around so that absorption is checked. I think that is a valuable remedy if the pain is severe. If the pain is not severe that is not necessary and the incision and puncture can be left until the wall of leucocytes has formed.

EMPHYSEMA OF THE EYELIDS*

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The word emphysema is derived from the Greep $\epsilon\eta$ in and $\phi\upsilon\sigma\alpha\eta$ to blow and, of course, means the collection of air or gas in the interstices of cellular tissues of the body.

This is a condition that is not often encountered and usually is not of great clinical

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significance. When encountered it means usually that some cavity has been opened up and that air has been forced into the cellular tissue or has, if you will permit the expression, "drained" into the cellular tissues or has followed the line of least resistance from the forces behind it. Especially is this true with the eyelids and orbital structures. Sometimes it happens from direct violence, as fracture of the bones of the nose or ulcerative weakening of the bones of the lachrymal canal and consequent pressure from blowing the nose, etc. The air generally comes in this instance from the maxillary sinus, ethmoid cells or nasal fossa. I recall one case some years ago of emphysema of the eyelid following an enucleation of the eyeball. Where the air came from, I was never able to find out but conjectured at the time that there must have been a diseased opening from some cavity that was not revealed. Be that as it may, it had no effect whatever as far as could be ascertained on the result of the operation and disappeared in two or three days. Several cases have been reported in literature where lid emphysema resulted from blowing the nose hard to rid it of secretions and where there had been no injury at all, so far as known, nor any surgical work done. It was thought by the writer that there might have been a diseased opening between the ethmoid cells and the orbit.

However, there may be other areas from which gas or air may come and the eyelids may be just a part of the emphysematous condition. With this idea in view, I feel justified in reporting the following case, which I am disposed to believe is extremely rare and, on account of its rarity, appeals to us as worthy of mention in this section.

A child about two or three years of age, was making marks with an ordinary long, wooden lead pencil on paper which rested on a chair; the mother received a lady guest and the child followed them to the other room, pencil in hand. As the child went into the other room, it stumbled over a rug, fell to the floor with the pencil still in hand, the rubber end on the floor, the child's body falling heavily on the point of the pencil.

The pencil point pierced the thorax in front and made a punctured wound just barely above the first rib on the left side and below the left

clavicle to the left of the manubrium of the sternum. It missed the left subclavian artery and vein but punctured the apex of the left lung. Within three minutes the left eyelid was entirely closed and in five minutes the right eye was entirely closed; the emphysema spreading to the entire face, neck, back and entire trunk as far as the anterior spines of the ilium. I saw the case within ten or twelve minutes after the receipt of the injury and at first supposed the pencil had punctured the left eyeball, as the lid appeared to be worse swollen at that time, than any other tissues.

The parents quickly showed me however the entrance wound and gave me the figures as to the approximate time that the swelling of the tissues had followed those of the eyelids. During my examination the emphysema became worse and worse and the "crackling" was detected over the entire trunk. The parents and neighbors of that section of the city in which they lived, seemed to be more frightened by the extraordinary swelling of the eyelids than anything else. I then allayed their fears by saying that that was the least of the injury and was air that had escaped under the skin from the lung. The pencil was examined and the lead point was not there; had been broken off either before the puncture or was in the wound or lung. Several x-ray pictures were taken within an hour or two after the injury but were negative and to this day, I do not know whether the pencil point was in the child or was broken off before the receipt of the injury. In the light of subsequent events, I am constrained to take the view that probably the point was broken off before that. There was no edema of the larynx and the cough which subsequently developed was of minor importance. After the second day the eyelids began to reduce in volume and the child could see well enough with one eye to be entertained. In a week most of the emphysema was gone from the chest and back and the eyelids were beginning to look almost normal. In two weeks it was entirely gone. We had feared a traumatic pneumonia, pleuritis, septic infection of the wound, or possibly some other complications but happily not one of these put in an appearance. The child had a little fever on several occasions but that subsided promptly and the cough before mentioned was at no time any worse than a "common cold." A

punctured wound of the thorax with a dirty lead pencil into lung tissue is bad enough to warrant many misgivings but our sterile dressings seemed to be all sufficient in this case and our policy was one of expectant readiness to deal with complications as they arose. The child made an uneventful recovery.

DISCUSSION

Dr. C. A. Hercules, Harvey, Ill.: This was a most unusual case. I had a case of an accidental injury in a boy who was struck on the eyeball with a golf ball. This drove the eyeball backward and the bony orbit offering firm resistance on all sides except on the side of the intra orbital septum where the lamina papyracea offers very little resistance and fractures easily and permits air from the nasal cavity under slight elevation of pressure to enter the inter cellular tissues of the lids, thereby producing an emphysema of the lids. Accidents of this nature are not at all uncommon and frequently after intranasal operations an emphysema of the lids will result from an accidental fracture of the same bone. Accounting for the emphysema in this case there was doubtless a puncture of the apex of the lung and the air was forced beneath the platysma myoides upward and the tissues of the lids being of the loose character that they are would be the first to show the emphysema. In handling live pigeons this same condition is frequently brought about by a fracture of a wing or of some chest bone.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS

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I have chosen this topic for discussion this morning for two important reasons. First, that I regard advanced pulmonary tuberculosis as neglected cases, the diagnosis in the earliest stages being of paramount importance in the treatment of this disease; secondly, that the favorable outlook in the management of pulmonary tuberculosis is in direct proportion to the incipency of the stage at which treatment is commenced. In all treatises on the subject, attention has been focused upon the study of physical signs, x-ray and other laboratory findings. Although these are of importance, in the earliest stages of tuberculosis very few of these signs are present. In order to diagnose tuberculosis at the earliest possible stage, recognition of the etiologic factors and subjective symptoms is of most importance.

I will, therefore, speak of this in great detail.

Tuberculous infection is now recognized to be almost universal, at the age of maturity. The tuberculous disease which we recognize as clinical tuberculosis is now considered the manifestation of immunity, and caused by the temporary failure of this immunity. This failure of immunity is especially common in young adults between the ages of 15 and 25, when, due to the increased physical and development strain, symptoms frequently develop. These symptoms manifest themselves as general malaise, weakness, loss in weight, anorexia, slight temperature, pleurisy and protracted colds. Frequent colds and grippal infections of insidious onset are especially important as the earliest manifestations of tuberculosis. These colds when carefully studied, however, differ from the usual grippal infections in their lack of symptoms of nasal and upper respiratory diseases. The onset is very insidious and the course protracted, the cough often lasting several months. When studied carefully patients presenting one or more of the above symptoms under the circumstances mentioned, also show certain physical signs which aid us in the diagnosis.

In examining the chest, percussion will show impaired resonance and retraction in one of the apices. On auscultation over this area, the most constant and most important early sign is the prolongation of the expiratory phase of the respiratory murmur. Although widespread rales are of no importance in the diagnosis of early pulmonary tuberculosis, the presence of a small number of localized rales over the suspected area is of great importance. These rales are frequently absent during ordinary auscultation and present only when provoked by cough. These provocative rales can best be brought out by patients gently coughing at the end of the expiratory act. When these rales are present constantly, over the localized suspected area, in the patient suspected of tuberculosis because of the previously mentioned symptoms, they are almost pathognomic of active pulmonary tuberculosis and rank next to the finding of tubercle bacilli in the sputum in diagnostic value.

The use of the x-ray, although of great importance in the diagnosis and differential diagnosis of pulmonary pathology is of little value during very early stages of pulmonary tuberculosis, as the pulmonary infiltrative process which consti-

tutes the pathology of these cases does not cause definite x-ray shadows.

In conclusion let me say, that more careful attention to the subjective complaints and physical background of the patients will enable one to make a diagnosis of tuberculosis at the earliest possible time.

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RECENT ADVANCES IN THE STUDY OF BRONCHIAL ASTHMA*

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In May, 1924, we established a new clinic at Northwestern University Medical School. This was for the care of patients suffering from the various diseases which we now classify as allergic in type. Up to date, about 1,000 patients have been studied at this clinic. Included in the varieties taken care of are the following clinical conditions:

Bronchial asthma, which is the subject for tonight, comprises about two-thirds of all the cases and we diagnose it chiefly on the history of attacks of difficult breathing and wheezing with intervals of freedom between the attacks. Of great importance are the onset early in life, the strong tendency to hereditary transmission, and the positive skin tests in most cases.

Asthmatic bronchitis is characterized by dyspnea, cough and wheezing, with cough the main feature and with onset late in life, with absence of allergic and hereditary findings and with more or less constant distress.

The third member of the group is a newcomer and is called allergic bronchitis. Among others, Waldbott,¹ of Detroit, emphasized the great frequency of cases of bronchitis, without asthma, in which there is a sudden onset of a dry, unproductive cough; these cases occur in children, usually, frequently have an allergic family history, respond to ephedrin and epinephrin, and removal of the offending protein brings relief in most instances. It is in this group especially, where prophylactic treatment may be of great avail.

Allergic rhinitis, the fourth member, is a fre-

quent condition and is more often termed vasomotor rhinitis or hypersensitive rhinitis. We believe the term allergic rhinitis is the best one as very frequently the patients are improved by treatment along the lines of allergy, which includes skin tests and removal of offending substances.

Hay fever, urticaria, angioneurotic edema and eczema in children are common and comprise a considerable percentage of our material. In addition, there were a few cases of so-called food allergy, where patients have various gastro-intestinal upsets on eating certain foods. We also tested out a few cases of migraine, epilepsy, and miscellaneous skin diseases.

About fifteen per cent. of all cases studied were referred to the medical dispensary for further treatment. These patients were non-allergic and for the most part were cardiac cases with so-called cardiac asthma, some with hypertension and chronic nephritis; a few cases were luetic and these did well on specific treatment. Occasional mediastinal tumors and a few patients with pulmonary tuberculosis were found.

Let us consider bronchial asthma tonight as this is the most important of all.

All through the centuries asthma has been considered more or less incurable and even today there are many physicians, perhaps the majority, who still believe that there is no hope for the asthmatic. It behooves those of us, then, who have given special attention to the subject to try to bring to light the knowledge gained in recent years, in order that hope should replace despair.

The anatomy of the bronchi interests us especially as regards the muscle layer and the innervation. The muscle layer is almost entirely of the circular type and studies indicate that as the bronchi diminish in size with division the muscle layer becomes proportionately larger. The bronchi are entirely under the control of the vegetative nervous system. Stimulation of the vagus nerve causes contraction of these bronchial muscles. Stimulation of the sympathetic merely opposes the action of the vagus and so relaxes bronchial muscles which are constricted. Epinephrin acts by stimulating the sympathetic fibers and relieves paroxysms of asthma by inhibiting the constricting action of the vagus nerve, not by

*Read before the Chicago Medical Society, January 9, 1929.

an opposing set of muscles,—only one set of muscles has been described.

Sensory fibers of the vagus are plentiful in the epithelial layer and this explains the marked irritability of the mucosa to materials from without; these nerves, therefore, aid us in protection; but when asthma occurs their very sensitiveness brings on many attacks.

There are two main theories as to the manner of mechanism of the paroxysm of asthma, the theory of broncho-spasm and the theory of edema of the mucosa. The theory that asthma results from a contraction or spasm of bronchial muscles, is strongly supported by experimental work in which actual muscle contraction occurs on stimulating the vagus nerve; and by the work done by Huber and Koessler² in 1922, who demonstrated, post-mortem, that definite hypertrophy of the bronchial muscles occurred in cases of chronic asthma.

The theory of edema of the mucosa as a cause of obstruction of the bronchi also has much in its favor. First of all, every other variety of allergy is characterized by local edema. This includes hay fever, vasomotor rhinitis, urticaria and even the skin tests used in diagnosis. By analogy, then, bronchial asthma may be caused by an exudation into the bronchial lumina with obstruction. Post-mortem findings have also, in a few cases, shown swelling of the bronchial mucosa, and, lately, bronchoscopy, offering direct vision, has enabled several observers to report marked edema during attacks of asthma. These two theories have their champions and the question is not settled. Probably the truth is that the same stimuli which cause bronchospasm also cause increased secretion and that the resulting bronchial obstruction comes from both sources.

There are other theories, less well supported, as to the mechanism of asthmatic attacks. One is that the asthma is a result of focal infection, from teeth, tonsils, sinuses, etc. There is little experimental evidence in favor of this theory and, clinically, permanent improvement from removal of these foci of infection rarely occurs. It is true that operations based on this theory are sometimes successful, but most of us know only too well that the improvement, if any, is temporary in most cases.

Of chief importance in recent work on the etiology of bronchial asthma are the questions of

hereditary and allergy. Heredity has been shown to be all powerful. Studies by Cooke, Vander-Veer, Drinkwater³ and many others have put the hereditary theory on such a firm basis that we must accept it and say that true bronchial asthma in most cases is handed down from one generation to another. It has also been shown that the tendency conforms to Mendelian law as a dominant characteristic. In addition, it has been demonstrated that where both parents suffer from some one or other allergic condition the children are almost sure to develop hay fever or asthma and at an earlier age; where there is unilateral family inheritance the likelihood of passage to the offspring is less and the age of onset of allergic symptoms is later; and lastly, when neither parent is allergic, there is much less chance of allergy in the children and if such does occur it is usually much later in life than where hereditary influences are strong.

These statements are based on many statistics, among them the following: Cooke⁴ found that 69.5 per cent. of children with bilateral hereditary influence showed some form of allergy or atopy, as he calls it, and only 41 per cent. where no family history was obtained; furthermore, of these children, 72 per cent. with bilateral family history showed allergic symptoms before the age of ten; 35 per cent. with unilateral family history had symptoms before the age of ten; and only 20 per cent. where there was no family history at all. Balyeat,⁵ of Oklahoma City, studied 1,000 cases with reference to heredity and found the following: 58.6 per cent. of cases with bilateral family history developed symptoms of allergy in the first decade and 32.3 per cent. with unilateral history. Only three cases with bilateral family history developed symptoms after the age of thirty. Incidentally, Balyeat skin-tested a number of new-born infants and found positive skin tests to wheat and egg in two cases. This, if substantiated, will be a strong argument in favor of the importance of heredity in bronchial asthma. Balyeat used as controls 1,117 normal university students—only 8 per cent. of these healthy persons gave a positive family history of asthma or hay fever, as opposed to about 60 per cent. in patients with asthma and hay fever.

A. E. Smith⁶ has reported a family of 94 persons in five generations with special regard

to hereditary occurrence of allergic manifestations. Of these 94, 56.2 per cent. suffered from one or other of the allergic diseases; 4 had asthma, 11 hay fever, 15 vasomotor or allergic rhinitis, 17 urticaria, 6 angioneurotic edema, and 14 eczema. Twenty-three persons who married into the family were used as controls in this study; of these 23 only one was allergic.

It has been repeatedly shown that the children of allergic parents usually develop allergy, but that the form in the offspring need not be the same,—thus the child may have hay fever and the parent asthma, or vice versa.

Allergy is the other main line of advance in the study of bronchial asthma and its recognition has stimulated much research work. The word allergy, or altered reactivity, is very often confused with anaphylaxis. These can be readily distinguished if we recall that anaphylaxis occurs practically only in animals as a result of experimentation. A guinea-pig, for example, is given an injection of egg white and after seven to ten days the injection is repeated. No symptoms will result from the first injections, but after the second, if dosage and timing are suitable, the guinea-pig will have more or less marked bronchospasm, ending in recovery or death, depending on the dosage. Under similar circumstances a dog has circulatory changes and rabbits have lesions in the pulmonary blood-vessels.

In contrast, allergy occurs only in man and with symptoms involving chiefly the respiratory and gastro-intestinal tracts and skin, thus giving rise to the clinical conditions we call bronchial asthma or hay fever or allergic rhinitis or urticaria, etc. Now what causes allergy in man? We believe that it is a condition of hypersensitiveness or idiosyncrasy to some one or more substances which usually contain protein material, though not necessarily so; for example, most cases of allergy follow exposure to pollens, or animal dander, furs or feathers, or protein foods or orris root, the main ingredient of certain face powders. But there are frequent attacks following taking of aspirin and other drugs which contain no protein.

Then we have to explain why only a small percentage of people are victims of allergy. For example, why is it that most of us eat strawberries and no harm results? And why does about one person in a hundred break out with more or

less severe urticaria or hives after eating these berries? And why does only about one per cent. of the population have hay fever, although we are all more or less equally exposed? The answer we now believe lies in the factor of heredity and we believe that heredity is the main predisposing factor to the entire group of allergic diseases. Although this explanation does not get to the bottom of the matter it has been accepted by the large majority of men who are giving special attention to allergic diseases.

Kolmer⁷ in 1928, in reviewing the classification of allergy earnestly recommended simplifying the confusion in terms and he asked that the word "allergy" be used instead of "anaphylaxis," "idiosyncrasy" and "atopy"; and that the exciting agent be called an "allergen," instead of an "anaphylactogen," "sensibilogen," "sensitogen" or "atopen." We believe his suggestion an excellent one and adopt it with a view to doing away with the various terms used by different men.

The pathology of bronchial asthma offers little new evidence. Death during an asthmatic attack is rare, as we all know. However, Kountz and Alexander⁸ recently reported three cases of death from bronchial asthma. Clinical and post-mortem findings were given and it was shown that there was marked thickening of the muscle and subepithelial layers in the 3-6 mm. bronchi, thus confirming the work of Huber and Koessler; it was also found that the smaller bronchi were dilated and for the first time they showed that actual rupture of the basement membrane occurred with infiltration and destruction of muscle fibers by eosinophils as well as destruction of bronchial cartilage. They also reported that in two cases, one of twenty-five years duration and one of three years, that there was no demonstrable heart disease, despite the fact that one patient had persistent edema of both legs. This finding is in line with the fact that patients with bronchial asthma usually have good hearts.

We need not go into the symptoms of bronchial asthma except to emphasize once again the attacks of dyspnea and wheezing with freedom between attacks, and the early age at which symptoms begin, especially in those children who are unfortunate enough to have two allergic parents. This freedom between attacks occurs in the earliest years of bronchial asthma. As time goes on,

however, the two main complications gradually set in, namely, emphysema and chronic bronchitis. These bring with them more or less constant difficult breathing and cough and we find that the child who could do anything between attacks now shows dyspnea on slight exertion. And we also find that our clinical results become less satisfactory when these complications occur and it becomes evident that the best time for treatment is before emphysema and chronic bronchitis are superimposed on the picture.

The diagnosis of bronchial asthma is usually easily made on the history as already given. Confirmatory findings are positive skin tests in most cases, eosinophilia in the blood, and eosinophils, Curschman spirals and Charcot-Leyden crystals in the sputum. X-rays usually show more or less evidence of generalized fibrosis beginning at the hila of the lungs and spreading out in a fan-like fashion. An important point is that epinephrin given subcutaneously will almost always relieve an attack of true bronchial asthma, especially if uncomplicated.

In our clinic and in private practice we put our asthmatics through a definite routine. Each patient has a complete history taken on a special form and a complete physical examination is made. Wassermann, urine and blood counts are also carried out, as well as sputum and chest x-ray examinations. Most of the patients are also seen by nose and throat specialists and where indicated sinus x-rays are obtained. A few have had bronchoscopies in addition.

A few words about skin tests. There are two main ways of performing these, the cutaneous or scratch method and the intracutaneous or intradermal method. We have adopted the cutaneous method and only use the injections into the skin as confirmatory or when cutaneous tests have failed us.

About 85 per cent. of all our cases of bronchial asthma give positive skin tests to one or more substances. In order of importance, we place animal derivatives first, such as horse dander, cat hair, and the various feathers; then come pollens, house dust, various foods and miscellaneous substances such as orris root. We test each case thoroughly and use about 150 to 200 tests in most patients, making about twenty-five to thirty scratches on the forearms at each sitting. We have been using the back only in infants or

in certain cases where eczema or other skin disorder prevents us from making the tests on the forearms. We do not stop when we find a positive reaction as experience has shown that a patient may be, and quite frequently is, sensitive to more than one substance, and, correspondingly, will be most benefited by elimination of all offending materials so far as is possible. We believe group testing very unsafe and never use this method.

We go still further. We repeat all positives over and over again to be certain. And we are guided by Cooke's postulates, namely, that, firstly, the patient must come in contact with the substance which gives a positive skin test and, secondly, that exposure to that substance should bring on an attack.

In the differential diagnosis we have very little trouble. Asthmatic bronchitis, as stated before, comes on later in life, has no allergic nor hereditary findings, skin tests are negative, and cough is a constant symptom.

Cardiac asthma is quite common and is easily diagnosed on the history of dyspnea on exertion beginning in the later stages of life and associated with definite signs of cardiac disease, such as enlarged heart, hypertension, accentuated second aortic tones, moist rales at the bases of the lungs and sometimes by enlarged liver and some edema of the lower extremities. In addition, arrhythmias may be present and we are aided by x-ray and electrocardiographic findings. Skin tests are negative.

Pulmonary tuberculosis must be thought of and we know how frequently the two diseases are confused, even to the extent of putting an asthmatic in a sanatorium for tuberculosis. It is true that the two may co-exist, but repeated negative sputums in doubtful cases should make us suspect asthma, especially where there is a history of allergy in the family. When in doubt, it seems to me that we cannot afford to omit skin tests.

Other chest diseases occur, such as lung syphilis and mediastinal tumors. Inspiratory dyspnea should make us suspect pressure on a bronchus or larynx or a foreign body in the upper air passages. The dyspnea in bronchial asthma is chiefly expiratory in type. To illustrate, about a month ago a colored patient was admitted to my service at Cook County Hospital with a diag-

nosis of bronchial asthma. Examination showed loss of weight and marked dyspnea of inspiratory type; there was also an absence of breath sounds in most of the left lung. The diagnosis was changed to obstruction of the left bronchus and fluoroscopy and x-ray showed some sort of a mediastinal mass, possibly a gumma. The patient has improved on luetic treatment.

The prognosis of bronchial asthma is undoubtedly more favorable now than formerly. It used to be considered a more or less incurable disease. Now we do not believe it is incurable. On the contrary, we think that we can improve or entirely alleviate the symptoms of the majority of cases of true bronchial asthma.

In our series of cases, both at the clinic and in private practice, about 85 per cent. of the patients with true bronchial asthma have shown improvement. About one-third of these have been completely relieved for a period of from six months to seven years. The remainder of the 85 per cent. are better, but still have some symptoms. Pollen asthma cases especially have given most excellent results and asthma has very rarely occurred after pre-seasonal treatment.

Rackemann,⁹ of Boston, has followed his cases much longer than we have and in March, 1928, he reported 213 cases of asthma of all types completely relieved for more than two years. This was from a total of 1,074 cases; in other words, a so-called "cure," using the word "cure" to mean freedom from symptoms for two years or more, in 20 per cent. of his cases. Of these he found that the younger the patient the better the prognosis and he showed that 65 per cent. of his cases under twelve were either completely relieved or greatly improved. Every worker in this field has also learned that the younger the patient the better the results of treatment.

Other men report likewise. Gottlieb, Piness, Eyermann, Walker, VanderVeer and Duke all answered a questionnaire sent out by M. H. Kahn,¹⁰ of New York, in regard to the curability of bronchial asthma. All reported many cases entirely relieved, although none use the word "cure." Kahn himself is less optimistic and he does not believe that asthma is curable.

The treatment of bronchial asthma is both prophylactic and active. With the almost unanimous agreement as to the tremendous importance of heredity in the cause of bronchial asthma and

the other members of the allergic group, it behooves us to see what steps can be taken to prevent these sicknesses.

We know that where both parents are allergic symptoms of one or other variety of allergy will develop in about 60 per cent. of the children. If this fact, and it is a fact, were better known and broadcast to the laity and physicians alike, a forward step would result. First of all, then, inter-marriage between allergies should be frowned upon. This may seem radical, and I have not heard the idea expressed before, but if carried out there would be far less asthma and other allergic diseases.

Secondly, children with one or both parents allergic should be closely watched almost from birth. Coughs, especially, should be noted as being possibly due to sensitiveness to some foreign substance. Feather pillows should not be allowed these children because of possible trouble from the particles of feathers. Either no pillows or kapok pillows can be used. One food new to the child should be added at a time and at least a week's interval pass before another food is given. This is because of the great frequency of sensitiveness to milk, eggs and wheat in infancy and early childhood.

Thirdly, exposure to animals should be restricted. Household pets, especially dogs and cats, should be forbidden and horseback riding discouraged.

Fourthly, at the very onset of any symptoms which may be allergic, whether it is eczema, or urticaria, or hay fever, or asthma, the child should be thoroughly examined and thoroughly skin-tested. Do this at once and the prognosis becomes excellent. Delay until the chest has become deformed and emphysema and chronic bronchitis have complicated an otherwise simple bronchial asthma and the child may be doomed to more or less continuous suffering. In few other diseases have we such a splendid opportunity to prevent and alleviate symptoms as we have if we promptly recognize an allergic family and adequately care for the children of this family. This prophylactic treatment represents a real advance in the study of bronchial asthma.

The treatment of bronchial asthma after it has occurred is divided into the specific and non-specific. There is little new work on the specific side. We make skin tests and we try to discover

the cause. In most cases of true bronchial asthma we find positive tests and in most cases we get good results by removing the cause, where possible. In addition, we attempt to desensitize our patients to substances which we cannot adequately remove. These include pollens; egg, wheat and milk, the most common foods; feathers, horse dander, cat and dog hair, these last two because they are used very commonly for furs; and orris root, unavoidable because of its widespread use in face powders. We also attempt to desensitize those patients who are sensitive to house dust and usually treat them with an extract from dust gathered from their own homes. Desensitization has been attempted by subcutaneous injections of the offending substances, beginning with small doses and gradually increasing the strength of the materials. An important point in the treatment, often neglected and often a cause of failure, is the necessity of absolute avoidance, so far as is possible, of the substance for which treatment is being given. For example, it is not sufficient to tell a patient sensitive to egg to avoid eggs,—he must also avoid all egg-containing foods, such as ice-cream, egg-noodles, cakes and pastries, mayonnaise, and certain candies which contain particles of egg.

The non-specific treatment consists of the use of a number of different drugs and other methods of treatment.

Ephedrin has come to stay and is being employed very widely at the present time. We have been using it for about three years and our results coincide on the whole with those of others. We have used both the sulphate and the hydrochlorid salts and have not seen any advantage of one over the other. We have used it by mouth only, giving from one-sixth to three-fourths of a grain per dose depending on the patient and the severity of the case. We have found that in about 50 per cent. of cases ephedrin helps to prevent attacks and to lessen those which do occur. We have learned, as others have, that all patients cannot take ephedrin, as it causes many to have untoward symptoms, such as tremor, palpitation, insomnia, weakness, excessive perspiration, nausea and vomiting.

Ephinephrin or adrenalin still stands supreme for the treatment of attacks of bronchial asthma. Five to fifteen minims of a 1:1000 solution hy-

podermically will relieve most attacks, at least temporarily.

We see no indication for the use of ephedrin hypodermically as its action, while prolonged, is too slow for use in severe attacks. But we do use it between attacks because of its prolonged action and because it can be taken by mouth. It is an important drug and a welcome addition to our list of medications, but it must be used with caution and its widespread use by the laity discouraged as it is a dangerous drug. For example, Bloedorn and Dickens¹¹ reported a case of cardiac decompensation due to ephedrin and Chen, whose work put ephedrin on a firm basis, states that the drug should be used most cautiously, if at all, in cardiovascular diseases.

Other medications are numerous. Potassium iodid and belladonna are good symptomatic agents in loosening secretions and relieving spasms. Atropin we have found rather ineffective. Calcium therapy, with or without parathyroid or thyroid, has disappointed most of us and we believe its use valueless. Creip and McElroy,¹² recently examined 40 normal students and 167 cases of allergy, including 80 cases of asthma and found that both groups showed normal blood calcium figures (about 10.5 mg. calcium per 100 c.c. blood) and concluded that there was no basis for calcium therapy in allergy. They also tested 10 allergic cases before and after giving five grams of calcium lactate three times daily, with parathyroid extract, for twenty days, and found no increase in blood calcium. They also showed that exposures to ultraviolet rays did not increase blood calcium. They also made gastric analyses in 50 cases of allergy and found 36 per cent. achlorhydria, 8 per cent. complete achylia, and 32 per cent. hypo-acidity (below 10 free acid), 28 per cent. normal and 6 per cent. hyperacidity (about 70). This work suggests that hydrochloric acid may be valuable in the treatment of allergic cases.

Peptone given by mouth and intravenously is inefficient, as shown by Ramirez¹³ who treated 60 cases with it without any relief. We, too, have used peptone and abandoned it.

We have used ultraviolet light treatments for the last eighteen months as an accessory to other methods of treatment. We believe that it helps as a tonic. It seems to be especially valuable in children and undernourished adults.

Our results have certainly been better since we started giving these exposures. It is necessary to emphasize that it has no specific value, but its use seems to help the appetite and build up the system.

Vaccine treatment is not often necessary in true bronchial asthma, but where secondary infection occurs we make autogenous vaccines from the sputum, plate out the main organisms, grow them separately and skin test the bacteria separately. Then we treat the patient with the one or more varieties which give the best reactions.

Removal of focal infections is carried out as far as possible. Infected sinuses, tonsils and teeth are taken care of and sometimes good results occur. We do not believe that straightening septums and removing turbinates help.

SUMMARY

In conclusion we wish to emphasize the following points:

1. Heredity is very important and the closer the relationship the more probable it is that the children will develop one or other of the allergic diseases; and the closer the relationship the earlier will such symptoms appear.
2. The conception of allergy with its use of skin tests has been a big step forward and treatment based on it has enabled most bronchial asthma cases to be either entirely or partially relieved of symptoms.
3. Skin tests should be thoroughly and completely done or not at all. Testing with ten or twelve materials may be very misleading.
4. The earlier the diagnosis of bronchial asthma is made and the earlier treatment is begun, the better the prognosis. After emphysema and chronic bronchitis have occurred there is less chance for complete recovery.
5. Prophylactic treatment can be very successful and demands propaganda against intermarriage between allergic patients, close observations of children of allergic families, and screening such children, so far as is possible, from the more common foreign substances, which may precipitate attacks.

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DIATHERMY IN SENILE CATARACT*

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Will diathermy cause pathological masses in the lens of the eye to be absorbed? This is the problem we have been working upon for close on two years. I will present the facts as we found them and leave you to draw your own conclusions.

Dr. E. W. Cox of Seattle, Wash., in an article in *Clinical Medicine and Surgery*, page 216, Vol. 34, No. 3, states that he and his associates have cured or at least absorbed a number of senile cataracts in many elderly people, in their community.

Dr. C. E. Shelby, an English physician, in an article in the *Archives of Radiology* of that country, states that diathermy given over a certain length of time caused a distinct alteration in the surface of lenticular opacities, with a definite improvement in vision. One case he quotes as follows:

Miss M. S., aged 70. Left eye blind since childhood: dense and extensive corneal scar due to accidental injury. Right eye, complete cataract, ten years, very slowly maturing. Vision: distinction between light and darkness; can not count fingers. Much mental depression. Several serious falls. In dull weather, using atropine she gets some temporary vision, mostly masses of vivid red and blue. Diathermy started Aug. 25, 1921; after ten treatments at 500 m. 30 min. can count fingers at twelve inches, also can see green leaves on a shrub in a pot beside her chair. Twenty treatments: she can see the food on her plate (a thing, her sister claims, she could not do for many years). After a number

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of treatments she could, on 18th of October of the following year, see much better. She can distinguish the heads on coins and read the word "Hospital" on a small flag.

In our experiments, which lasted very nearly two years, we used a late model Fischer machine Type v. amperes 10 volts 110 cyl. 60. The length of each treatment was 10 to 30 min. The amount given was 150 to 750 milliamperes, according to the toleration of the patient.

A cotton pad was moistened with normal salt solution and placed over the eye to be treated. The metal disc shown in the picture was applied to the eye, the other pole to the neck of the patient. This arrangement we think was much better than that used by Dr. Cox, which consisted of a piece of block-tin placed on the back of the neck and a mesh electrode that fitted down over the eyes and nose. This arrangement was poor because sparks would jump across to the lid of the patient and cause burns. This would hinder the work for once burned the patient would fail to return for more treatments.

We produced traumatic cataracts upon a rabbit's eyes. Upon examining them I was surprised to find all the opacities gone.

After this we got up courage to attempt treatment upon some human subjects who were not likely to clear up so quickly.

It seems reasonable to imagine that vibrations occurring at the rate of many thousands in a second of time throughout the body would act:

1. As an internal and molecular massage, shaking old and wornout cells adrift, and bringing up new and sound material to replace them.

2. That it seems it should be within the normal powers of the living body to carry off and get rid of this waste matter, once its mass had been thoroughly disintegrated.

3. That the stimulation of the circulation which usually attends the application of diathermy to the human body would favor these processes.

The suggestion that it might thus be feasible to disintegrate such masses led us to think that the hardened, dry and opaque fibres of the cataractous lens could also be absorbed.

Cataracts of the human lens fall into two classes: 1. Those in which the patient possesses one sound eye with fairly good vision and another eye which is also sound except the vision is impaired by an opacity of the lens. These cases if

the general health is good show no contra-indications to operative surgery. 2. The second class includes all other cases. Those in which the vision of one eye has been lost completely and the condition of the other (cataractous) one, the advanced age of the patient and his weakened or poor health are matters of grave moment. Next cases of) glaucomatous cataract where the sight of one eye is already lost and there are doubts as to whether the sight of the other would be in any way improved even if the lens were successfully removed. 3. Those in which the cataract is complicated by some other defect or trauma. 4. Those in which the cataract is ripening very slowly in the only eye the patient has left.

For all eyes in class 1 we recognize that extraction of the lens in skilled hands is the ideal procedure. Of course this causes the patient to lose his power of accommodation which is not so if the cataract is removed with diathermy. This objection can be met by applying appropriate lenses.

The alterations in the appearance of the lens surface after treatment we found to be the same as those observations made by Dr. C. E. Shelby.

The opacity is changed in appearance after one or two treatments. From a smooth light reflecting mass it begins to look like fluffed cotton. This we thought to be the first sign of the disintegration of the hardened lens substance. Later this clears up. The margins are the first to clear in some cases; in others the center is the first to thin out.

The vision in those cases where results were obtained was at first less clear. But after a few weeks the vision improved steadily until the maximum had been reached. The colour sense preceded the sense of form perception, the colours seen were in the order of bright green, blue, red then the yellows.

Following will be found a chart of the results obtained but before going on to them I wish to point out that while operation is the best method yet we must consider the very great mental and physical distress that attends the process of a slowly ripening cataract, especially when this is the only eye left to the patient. The far reaching limitations which wall in the daily life of such a patient; the growing disappointment of hope deferred and apparently always to be withheld; the

ever growing sense of isolation; the risk of accident; and the consciousness of becoming more and more dependent upon others; these things though not always expressed do often form a burden which makes life a very narrow affair. If a diathermy, a measure harmless and painless, could lighten in any way the darkness of such a dreary existence then let us try it. Even though full vision cannot be restored, enough for them to get along with can perhaps be brought about.

CASES ON RECORD

No.	Eye	Age	Kind	No. Treat.	Result.
1	Left	76	Senile	42	Vision 20/30, before 20/70
2	Right	76	Senile	47	Vision 20/35, before 20/80
3	Right	71	Senile	59	Vision. Slight improvem.
4	Left	71	Senile	59	Vision. None.
5	Left	72	Senile	6	On to compl. blindness.
6	Right	72	Senile	6	On to blindness
9	Left	46	Local inf.	63	20/70 to 20/35 Vision
11	Left	52	Senile	6	No result. Stopped
12	Right	70	After Cataract	15	Thinned out. Vision better
14	Left	48	Traumatic	1	No result
16	Left	54	Senile	27	No result. Worse

DISCUSSION

W. R. Fringer, Rockford: Dr. Alloway's novel and painstaking paper is interesting. His results are neither very gratifying nor specific. The history of opacities of the lens is so uncertain that it is practically impossible to differentiate those that are moderately stationary from those that are going to advance fairly rapidly. At least I admit my inability to do so. In time the slitlamp or photographs of the anterior segment of the eye as demonstrated by Dr. Harry Gradle on Monday night may enable us to give a more definite prognosis. With such a history the treatments to stop the progress of lens opacities or absorb them is bound to be many and varied. Most of these treatments are harmless if not efficient, but diathermy to my mind is a hazardous procedure. I quote verbatim the report of a case by the late Dr. Herman Knapp made before the American Medical Association, in which he says: "As to heat producing cataract I know of one case where I produced cataract by the galvano-cautery point with which I burned off the apex of a keratoconus too slowly and pierced the cornea. I wanted to make only a small puncture in the cornea. I obtained this end but a slowly developing yellowish cataract was the result and had to be extracted." Medical diathermy is defined as the warming of the tissues to the point short of tissue destruction. The etiology of opacities of the lens is not very clear. In a general way it is regarded as a lack of nutrition in that particular body. The lens has neither nerves, blood vessels nor lymphatics. I can conceive of no theory that will clear up opacities in such an organ by cooking it. It is my candid opinion that there should be a great deal more experi-

menting with diathermy on rabbits and guinea pigs before it is tried on human beings.

Dr. W. A. Fisher, Chicago: May I discuss this paper without having had any experience? I really believe that no one should discuss papers without having experience in the matter, but this paper is extremely interesting, and Dr. Alloway has done a tremendous amount of work. We all recognize that most of the men who are inclined to stop the progress of a cataract do not attempt any procedure at all where the vision is less than 20/40. If that is true most of the cases reported should be excluded. All the rabbits should be excluded because they were made traumatic cataract, in such cases they would get better without treatment. I believe there are only about six cases in his report that should be considered at all; that is, based on patients with vision of 20/40 or better. I do not think that any new procedure should be condemned without a fair trial. Having no experience myself, I just want to congratulate the doctor and say that I believe most of his work should have been done on patients with better vision than the ones he reports.

Dr. F. L. Alloway, Champaign (closing the discussion): The greatest difficulty was encountered in obtaining patients to submit their eyes to this treatment.

It is apparent that some few cataracts if stimulated often enough with diathermy will disappear. Diathermy should be used in the eye very cautiously, in fact we used it with great trepidation.

I would not advise it unless the patient is absolutely blind from scars or has a blind glaucomatous eye on one side and where an accident might occur to the little sight left in the cataractous eye. It can also be used with nice results in the pain of glaucomatous eyes.

THE LABORATORY AS AN AID TO PUBLIC HEALTH WORK*

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The term, "Public Health," taken in its usual and most known signification, means just exactly what the two words imply, namely, the physical integrity of every individual comprising the vast aggregation of beings participating in the activities of this cosmic atom which we call the World, and which at one time in our ignorant, complacent, insufferable and wholly inexcusable egotism, we held to be the center of what is known to be an illimitable Universe. The phrase, "Public Health Work," is the expression applied by

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that portion of this human conglomeration which fancies itself further advanced in the scheme of evolutionary development than may be said of the remainder, to an effort to maintain the highest degree of physical integrity obtainable with the means at *its*—or *their*—or *our* command. By this same token you will note that *we* class *ourselves* with those in the very front ranks of the evolved.

On the theory that eternal vigilance is the price of liberty, public health work takes cognizance of the physical requirements of humanity, collectively as well as individually, not only from the cradle to the grave, but even prior to birth and subsequent to death. And this supervision necessitates the consideration of many points of activity which we will endeavor to sketch as comprehensively as a twenty-minute limit will allow, in an attempt to demonstrate the fact that the laboratory now constitutes the cornerstone of the entire superstructure. Public health administration may be roughly classed under two heads:

1. Primarily, the recognition of what comprises a standard of physical integrity, or health, and secondarily, the recognition of conditions impairing this integrity, or, disease and injury.

2. Establishing means for maintaining this standard of physical integrity by, primarily, preventive measures, or prophylaxis, and, secondarily, corrective measures, or treatment.

It is with these two phases of public health work that the great network of public health administration has to deal in the organization and functioning of health departments and boards of health vested with certain and sometimes arbitrary authority, subject to some legal restrictions, in all of which the laboratory plays a major and sometimes a deciding part.

A recent standard and most comprehensive treatise on public health work discusses the whole field under forty-four subdivisions, one of which considers the public health laboratory as an entity, each subdivision being presented in most masterly detail. I really should cite a brief review of each of these subdivisions as presented by the authors, but I am limited here to 20 minutes, so can only suggest that you give the book the once over yourselves. You will be well repaid for the time and effort. Suffice it to say that

permeating the whole argument comprising each and every subdivision is the unavoidable impression, either expressed or implied, that the entire structure of Public Health Work is dependent upon the laboratory for its efficient usefulness as a measure of public safety.

Like all other phases of our existence which involve the repudiation of pre-existing opinions, sophistries, or theories, heretofore held to be truths, in favor of entirely opposite phases later established as incontrovertible facts by irrefutable processes of scientific reasoning, deduction, and demonstration, the laboratory was viewed by the laity and even by a large quota of the medical profession, somewhat as health departments were, and may be yet, in some sections, for all I know, as a "joke," and accepted by administrations as just another place in which to discharge political obligations, but the time has arrived when the assertion of the medical laboratory Galileo that the earth does move, can no longer be denied, and must be reckoned with even to the complete revision of our clinical dogmas and therapeutic casuistry.

Just as I had completed the preceding statement, wishing to rest my overworked brain, I picked up the March number of *Laboratory and Clinical Medicine*, and the very first article in that number was a most lucid and convincing address presented by Dr. William G. Exton of Newark, N. J., at the sixth annual meeting of the American Society of Clinical Pathologists, on the "Relation of Clinical Pathology to Pre-Clinical Medicine" and I am presuming to quote one paragraph therefrom in further support of my contention that the Laboratory is the center from which every thread of the net of public health work radiates, as follows (page 513):

If you read any of the articles which have found their way into different journals, it makes no difference from what part of the country they have emanated, or whether they have been published by clinic or practitioner or some other kind of agency interested in health, and if you will examine the available statistics, you will see that in the preclinical field it almost always requires some kind of a laboratory examination to throw the necessary light on the great majority of cases which need medical help. Our study of an adequate human material has shown conclusively that the number of people who are healthy enough not to have to complain of symptoms or discomforts but who show physical

signs on examinations are relatively rare as compared with the unexpectedly large number who are found to have significant health impairments by laboratory tests. Furthermore, the laboratory detects much more often than the physical examination changes which can be correlated with presymptoms, the evidences of slight malfunction or beginning disease.

I am now going to quote from Overton and Denno with little if any separate comment, the forty-four subdivisions of Public Health Work. Each and every one of which I hold to be subject to the broad statement that, without the laboratory and laboratory findings, few if any of these subdivisions could be intelligently and accurately directed.

1. Organization and powers of a health department.
2. The health officer himself.
3. The local board of health.
4. The public and the health officer.
5. The physician and the health officer.
6. Rural public health work.
7. Records and reports.
8. Standard procedures.
9. Local sanitary code.
10. Vital statistics.
11. Public health nursing.
12. Publicity and education.
13. Bacteriology.
14. Immunity.
15. The public health laboratory.
16. Epidemiology.
17. The management of a case of communicable disease.
18. The minor communicable diseases.
19. Smallpox.
20. Diphtheria.
21. Septic sore throat.
22. Scarlet fever.
23. Acute respiratory diseases.
24. Infections of the digestive organs.
25. Infections of the central nervous system.
26. Venereal diseases.
27. Tuberculosis.
28. Insect-borne diseases.
29. Miscellaneous diseases.
30. Mental defects.
31. Vermin.
32. Milk.
33. Food sanitation.
34. Food values.
35. Sanitary Engineering.
36. Nuisances.
37. The disposal of household wastes.
38. Sewage disposal.
39. Water supplies.
40. Ventilation.
41. Industrial hygiene.
42. Camp sanitation.
43. Child hygiene.
44. Life extension.

I have spoken, and for years it has been my pet hobby that in these matters I am the Court of last resort, and from my decision there is no appeal. Therefore if any of you think that the word "hobby" as used here, should be replaced by "delusion," kindly come down to the platform

and voice your opinions so that I can hear them, or else forever after hold your peace.

DISCUSSION

Dr. George H. Haan, Health Officer, Aurora: Dr. Mann gave most of his time apparently to the necessity of a laboratory. I think it was Dr. Victor Vaughan of the University of Michigan who made the broad statement that any city that has 25,000 inhabitants and has not a municipal laboratory is away behind the times. I think that also applies to cities a good deal smaller than that.

Dr. Mann asked me to state what a public laboratory is. Not every laboratory should be called a laboratory. Recently I have gone through the state of Illinois and examined a few laboratories. One was in a big city not very far from Aurora, not counting, of course, this great empire of Chicago, but a big city of 65,000 inhabitants was paying the magnificent sum of \$300 a year to have its laboratory work done. You all know how that is done. That city is not a thousand miles from Aurora.

We have had a public municipal laboratory in the city of Aurora for seventeen years. Part of the time it was run by a doctor who happened to be health officer. Part of the time we have had a part time bacteriologist and a chemist—those are the titles we gave them there.

When the health department was placed by the doctors of Aurora on a basis that it might be of some use to the community we found that these figures were about what we would have to have: we would have to have an original equipment of about \$3,000 for a city of 35,000 or 40,000. The depreciation on such equipment would be about \$150 annually. It would require a rental of \$900 to have that laboratory placed centrally. It would require \$3,000 to hire a competent man, and that was what we did. We started in by appropriating \$4,200, and we have continued that, and we will appropriate another amount very easily if we need it. One year I spent something like \$1,200 extra.

For laboratory work \$300 is nothing at all. I know of one place, you would not know it was a city when you were in the city, but they had a diphtheria outbreak. Their laboratory work was done in the city of Aurora and the outbreak cost them \$800, which they still owe us. It took about two or three months before they got rid of their diphtheria and it was our laboratory that cleared it up.

Of course you can have a laboratory and still have nothing. If you have a laboratory you want to have a working laboratory. The most important thing in a laboratory is the man who is in it. It is that way with the teacher in the school, it is that way with any big manufacturing concern, and in a laboratory the man who does the testing is the man who counts, and you have got to pay money to get those fellows. They won't stay with you if you don't pay them. Therefore, when I wanted a man for this particular position I consulted some

of our doctors and here is about what I thought he ought to be able to do. This man who had charge of the laboratory should be able to isolate and identify the various pathogenic germs, and some not pathogenic. He should be able to make a chemical and bacteriological examination of milk. He should be able to make a chemical and bacteriological examination of the drinking water. He should be able to make blood tests, and that is what I told these gentlemen when they came to see me. Other things were all right if they were college graduates and had other qualifications.

The general purpose of the laboratory should be an aid to diagnosis. That should be the general purpose outside of the special tests, and there are often very perplexing questions. I have been health officer in Aurora for ten years and we get some perplexing questions there. The laboratory man sometimes settles those. Positive findings in a laboratory often settle perplexing questions; at other times a positive test confirms the clinical findings. Such a laboratory as I have described can make 2,500 to 4,000 tests annually. This will cover any ordinary need of a city of 30,000 to 50,000 inhabitants.

PREOPERATIVE AND POSTOPERATIVE CATARACTS*

RALPH H. WOODS, PH.G., M.D., F.A.C.S.

LA SALLE, ILLINOIS

Cataract extraction is beyond doubt the simplest and easiest of all major procedures and yet one very frequently bungled by mismanagement.

The success or failure depends not alone on the operative technique but equally as much on the preparation of the patient for the operation and his subsequent care.

At the first visit the operator determines the condition of the lid borders and their glands, the conjunctiva and lachrymal sac. If there is any doubt about the patency of the sac it is a very easy matter to run some colored material through the puncta. If this can be blown from the nose it is proof positive that the lachrymal drainage is good.

Tension is taken. Projection and perception determined. Iris and pupillary activity inspected. The pupil dilated to determine the extent of the opacity. When in the history the patient states that he sees better on dark days and one finds evidence of the cataract maturing slowly a preliminary iridectomy is advisable.

One patient continued his job as a weigh master for over a year with this procedure before the extraction was made. Both eyes were operated on eventually and the patient is still on the job with 20/20 in each eye.

The big reason I see for waiting for maturity is that there is always that chance of failure. If the eye is sightless the patient can have no grounds for future argument. Invariably, bad results are not the fault of the operator, but the operator gets the blame.

After satisfying oneself that the eye externally is negative and that there is vision to be had the best treatment is scientific neglect. Do nothing. Remedies only act as irritants to tissues of an already lowered vitality and open an avenue for infection. On the other hand if there is infection in any of the adnexa such infection must be cleaned up to a point where 12 hour cultures come through negative.

The family history is important in that it might give one an inkling of possible lues and the personal history a hint to rheumatism. If there is any doubt about either, do a preliminary iridectomy. If an eye gets by an iridectomy with no plastic iritis it will get by a subsequent extraction. It seems that insults of an iridectomy are more than those of extraction.

Inspection of sinuses, tonsils and teeth are of vast importance. Fortunately in elderly adults the tonsils are usually well atrophied and usually the nasal tissues have undergone some considerable shrinkage leaving free and ample drainage and by the same token there is a shrinkage of the alveoli of the teeth and every possible chance of infection. The presence of crowned teeth and bridge work is to be suspicioned and should be x-rayed. A single pus pocket of a tooth is quite likely to undo a perfectly fine cataract extraction.

The laboratory man and the internist must be consulted. One should have a fairly good idea of the physical findings. A disturbing bronchitis must be corrected or quieted during healing period. A blood pressure above 180 is unsafe. After the internist has done all that can be with diet, iodides or other remedies at his disposal, usually 1 gr. sodium nitrate three times a day for four days prior to the operation pulls the pressure down to that point thus avoiding the possibility of an intraocular hemorrhage.

*Read before the Section on Eye, Ear, Nose and Throat, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

One case of my early experience comes to mind. Drugs did no good. We withdrew from the median cephalic over one pint of blood. The pressure dropped from 240 to 190 and the extraction made right then with no accidents and fine results.

Should the laboratory report heavy albumin or the presence of sugar the only safe procedure is a preliminary iridectomy. A Wassermann should be done if there is any factor in the history or family history to excite suspicion.

It is true that a preliminary iridectomy is far from being spectacular but it eliminates a factor of danger in the type of cases mentioned and makes good results just a little more certain. It is also a wise policy to explain to the patient that there is always a chance to fail and the measures followed are to keep the odds always in our favor. This procedure would be very wise in individuals with only one eye.

At the first visit it is very advisable to place a lid retractor under the upper lid and hold the lower lid away from the eye with the thumb, then instruct the patient on looking up and down, right and left and tell him that this simple pull on the lid is all he will feel during the operation and with this little previous instruction it is remarkable how uniformly well behaved patients become on the table.

The patient should enter the hospital the day before that he may become oriented and familiar with the surroundings. He is given the usual eliminative treatment of calomel and saline. Despite the fact that the conjunctiva may appear negative, a culture should be made on entering the hospital. The lower lid is held away from the eye for a couple of minutes and replaced. A fine, smooth, sterile platinum loop is then passed over the lower palpebral conjunctiva and in the cul-de-sac. A couple of loops of secretion implanted on blood agar or some other fertile culture media. If there is no growth in 12 hours one may feel safe in proceeding.

The patient gets his usual supper and usual breakfast. When the patient has been trained as to what to expect, there is no need for any opiates which again eliminates another possible source of danger of vomiting from the morphin action.

After being placed on the table (I use the cart to save two handlings) the anesthetic is

started, I use two instillations of 2% Butyn and two of 4% cocaine or more if needed. After the first Butyn the usual operating room technique of covering the head with a cap or sterile towels is followed. The skin about the eye is cleansed with soap and water. The cilia scrubbed with an eye sponge wet with 1:15000 bichloride, the eye flushed with this solution and followed by boric. The cilia of the upper lid near the external canthus are trimmed short, care being taken to avoid any of the cut ends falling into the cul-de-sac. If the individual has a bushy brow shaving it is advisable. Usually a thorough scrubbing is all that is needed. After the last drop of cocaine and a short wait the eye is again flushed with boric, a square of two or three layers of sterile gauze is wet and torn in the center to make an opening large enough for the operative field which is better than an eye sheet as it lies flat and out of the way, covering the bridge of the nose, brow and cheek. The remainder of the face is covered by sterile towels but only as low as the tip of the nose. The patient has to have air if he is to be kept quiet and he can't get air through a layer or two of dry goods. Again there is little danger of him infecting himself from this source. This part of the paraphernalia for covering the mouth should be worn by the talkative operator and assistant.

It is not the purpose of this paper to discuss any operative technique but from previous reference to the lid retractor I cannot let the opportunity pass of calling attention to the use of the lid speculum in cataract work. Put one in your own eye and see how you like it. Since I have thrown the lid speculum into discard for cataract work I have never lost any vitreous. The same assistant should be used for every case who is trained to hold the upper lid with a Fischer hook (the real old ones are better than the newer models or an ordinary lid retractor will do) and to hold the lower lid with the thumb. This avoids all pressure on the eye and offers little or no discomfort. If the assistant learns to be gentle with the retractor the patient will not "pinch."

One more paragraph directed to operators in Clinics. If one must talk during extraction he should wear a mask. I saw a noted Professor in a New York Clinic spit in three eyes. The Professor had a fine line of talk to impress his

audience and squirted a fine spray of saliva with each word. An intern told me that the Professor had a fine clinic of enucleations.

A factor which contributes to success is the axiom of "Get in quickly, do as little as possible and quit," as Dr. Chas. Beard frequently said "Get in and get out."

It has been my policy to operate on the cart. It saves handling the patient so much and lessens the hazard.

A drop of eserine is used at the conclusion of the operation. A very thin piece of long strand cotton is wet and placed over the closed lids of each eye, fibers verticle. When dry both lids are thus held firmly shut. More cotton added loosely, then bandage or adhesive and mask.

Every cataract case should be put in a modern adjustable bed, a bed with adjustable spring mattress, so that the position can be changed by the nurse several times during the day by simply turning a crank. So long as the patient does not lift his own head by the muscles of the neck it makes no difference whether he is in an up-right position or reclining.

Since the addition of this modern asset to the hospital I have experienced no trouble with gas pains or retention of urine and many other things patients complained of.

I still adhere to liquid diet for the first three days at least and explain to the patient that if the bowels do not move it is a desirable condition.

Unless there is some real indication the eyes are not uncovered for 48 hours at which time the lid borders are cleansed gently with moist cotton eye sponge and the patient asked to open the eye slowly for one look. This gives us a snapshot view of the wound. No medication is used unless indicated. I avoid pulling at the lid or flushing the cul-de-sac. Should the wound be gaping and the iris prolapsed the patient should be removed to the operating room and a conjunctival flap made to cover, plus disengaging the prolapsed iris.

The eye is dressed daily from then on with as little manipulating as possible and no flushing unless indicated. If all is well the patient is let out of bed on the fourth day.

If the pupil is contracted at the first or second dressing and there is no ciliary redness no remedies are used. If the pupil is open and no ciliary

redness eserine is repeated. When the ciliary redness first makes its appearance in 3 or 4 days the wound is generally pretty well knit. 1% atropine is started and repeated. I am well convinced that too early use of atropine is the cause of prolapse in many cases.

On the day the patient is allowed out of bed he is given a saline and put on his regular diet but kept quiet for the remainder of the week.

SUMMARY

This paper is prompted from the fact the writer has never had an infection or enucleation following cataract extraction.

A preliminary iridectomy is indicated in cases of rheumatic history, also in immature, slowly developing cataract and in diabetic and Bright's cases.

Don't open an eye with even one diseased tooth root. Rule out any other source of possible absorption.

Pull the blood pressure down to 180.

Make a 12 hour culture.

School the patient once or twice before the operation as to what to expect.

Train an assistant with a lid retractor to gently retract the upper lid and to hold the lower lid with the opposite thumb. Discard the self retaining speculum.

Don't smother the patient with stuff piled over his mouth and expect him to be quiet. Try it on yourself.

Operator and assistant should wear a mask and avoid talk while bending over the operative field.

Do as little as possible and quit.

Equip a cataract room with a modern surgical bed.

Avoid manipulating or flushing the operated eye or using medication unless really indicated until wound is well knitted.

DISCUSSION

Dr. J. H. Roth, Kankakee: Year after year we hear about cataracts from men who have a large free clinic experience. We have just listened to a man whose work is confined exclusively to private patients in a small hospital in a city outside of Chicago. Failures and accidents of the oculist in the small down-state city are not soon forgotten by the laity. A man who can say that in fifteen years' experience he has never had to enucleate an eye nor had a post-operative infection due to cataract extraction is certainly safe-

guarding his work as much as is humanly possible. Cataracts are vague to the farmer in the down-state community. A cataract may be anything from a pterygium to glaucoma or optic atrophy. When the oculist makes a diagnosis of cataract and tells the patient so he deals a more or less staggering blow. After the usual family conference the chance is about 50 per cent that the local oculist will ever see the patient again. Three choices are usually open to patients in this locality—Mayo's, the nearest large city, either St. Louis or Chicago, and Niles, Michigan. When the oculist of the large city corroborates the former diagnosis the patient is completely convinced and ready for operation. Early treatment of cataracts is a possibility. Many times we are able to arrest the progress or even cause resorption of the opacity. The real sprocket opacity does not seem to respond to treatment, but occasionally the more or less horizontal opacities if seen early may undergo resorption. Cataracts are a process of degeneration which is as a rule secondary to some focal or general intoxication. This pathology seen early and the patient placed in the hands of a competent internist may in a large percentage of cases save the patient many more years of useful vision than if allowed to progress with indifference. Whether local applications do any good or not is a moot question, but the patient who will submit to the monotony of daily ocular medication will also heed the warnings of the internist. Preliminary training of the patient and the twenty-four to forty-eight-hour stay in the hospital preceding operation is wise. The administration of one of the products of phenol barbital an hour before operation tends to quiet the patient and eliminate the cocaine intoxication which we have occasionally manifested by restlessness and tremor. So far as technique is concerned, any man who knows his field is usually a good surgeon and his technique is particularly adapted to his own needs. If a surgeon is capable of operating on a cataract he is competent to look at that eye whenever he feels it necessary. However, there is seldom any necessity to remove the original dressing for forty-eight hours. At the end of that time if he feels that the eye is not doing satisfactorily he has an opportunity to forestall in a great measure iris prolapse, post-operative infection or any other complication with which there is a possibility of dealing. Post-operative infection can be handled if taken early. The patient has a more or less vital interest in the eye and many times convalescence can be made more comfortable by the removal of the dressing at the end of forty-eight hours to reassure him that he will have vision. Just a word about operating on the insane. Do it under general anesthesia, do a conjunctival flap and bandage only the eye operated on.

Dr. O. B. Nugent, Chicago: Dr. Woods' paper was very interesting to me. He has gone into this subject very carefully and has said a lot of good things. I am not sure that I understood

Dr. Woods to say that a cataract operation was one of the easiest major operations to perform. I do not want to say it is the hardest, nor do I want to say it is the easiest. A cataract operation well done requires a great deal of surgical technique and surgical experience. It requires a surgeon to know his field and to know the eye from experience. I would like to take issue with him on the one point of allowing the cataract to become ripe before operation on the ground that the patient has no comeback. I do not like to admit defeat in that manner. When we get a case of glaucoma we expect bad results in the future, but not so with cataract operation, not today. The patient loses too much valuable time when he waits. Operation should be performed as soon as the patient is unable to do his work satisfactorily. Regarding infection, I am very glad Dr. Woods has had the results he claims with his cataract operations. I am sorry to say I have not had such good results—have had to eviscerate—not often, but occasionally. There is one thing that tends to overcome post-operative infection and that is a clean incision. I had an opportunity to observe fifteen cataracts done by a man who could not do a good incision. Out of the fifteen there were three infections and five prolapses. That percentage is entirely too high, and I believe the trouble was that he had very bad zigzag incisions. With the conjunctival flap there is a better healing wound with less possibility of prolapse or incarceration, especially if the flap is well sutured.

Dr. Harry Gradle, Chicago: Ordinarily I do not believe in congratulating a speaker, but I do congratulate Dr. Woods on this very excellent paper. One little point may be of value—in regard to moving the patient after the operation until the wound has had a chance to heal. We get away from that by using a cataract bed. The patient is not moved from that bed for four days. The bed is wheeled into the operating room and the operation done with the patient on the bed. It has no head board and no foot board. It is an ordinary hospital bed with back rest. We have had extremely good results with this, and it avoids moving the patient twice, from the table to the cart and from the cart to the bed.

Dr. W. H. Wilder, Chicago: I congratulate Dr. Woods on his successful results and I hope they may continue indefinitely, but, unfortunately, with increase in numbers, untoward results and accidents will occur, and they may not be to the discredit of the operator.

For the comfort of the patient, it is safe to state that with the avoidance of all complications and by taking every precaution against accident, we can count on from 90 to 95 per cent of successes. More than that we are not justified in promising, and, of course, we cannot give a definite guarantee as many patients suggest. To promise more than that is unwise, because certain complicating conditions

may be present in the eye of which we may not be aware.

How often it happens after a perfect operation which gives a perfect result surgically, we discover on looking into the eye, which we could not do before the extraction, a condition of posterior choroiditis or some other lesion that defeats the operation so far as good vision is concerned. Hence the importance of very guarded statements to the patient as to the outcome.

It seems to me that of the preparatory measures in cataract operation the most important are securing complete anesthesia and if possible complete akinesia of the eyelids so that there may be no tendency to squeezing.

Too often the operator contents himself with just dropping cocaine into the eye three or four times, thinking he has anesthetized the iris. One wants to be absolutely certain of complete anesthesia. You cannot do better if you are not absolutely sure than to inject subconjunctivally one minim or so of 1 per cent cocaine solution. It is better than novocain and in such small amounts not toxic.

For myself I feel satisfied that I have never approached a cataract operation with the same confidence as I have since I have adopted the method of paralyzing temporarily the orbicularis muscle. This is one of the most valuable procedures advanced in modern times. If the patient is lying quietly on his back perfectly anesthetized, one could completely cut off the cornea and not lose vitreous even if it were fluid, provided no pressure were made on the eyeball by lids or speculum. But if the patient squeezes ever so little he can force out the larger portion of the vitreous and so defeat the operation. Therefore, it is best to block the seventh nerve and so prevent the action of the orbicularis muscle. I prefer the method of Van Lint of injecting with a needle 3.5 cm. long 3 or 4 cc. of 2 per cent novocaine solution along the superior and temporal border of the bony orbit so as to block the branches of the seventh nerve that supplies the orbicularis muscle.

In addition I put about 1 cc. at the upper inner angle of the eye, pressing the needle down nearly to the inner canthus. I am satisfied that with this procedure the patient will be quiet and that there will be no squeezing against the speculum or against the finger. Another extremely important point is the preparation of the patient with some sort of sedative before the operation. The night before, to insure a good night's sleep, I believe in giving 30 gr. bromide and 15 gr. chloral, and if that does not produce any gastric disturbance, giving the same dose about two hours before the operation. The patient comes to the table feeling perfectly quiet and comfortable and is in a much more favorable state of mind for the operation than if I had failed to use this preliminary measure. To me, complete anesthesia is the crux of the operation. One other point: your patient may have acute delirium following the operation. Some elderly patients are

very much terrified when they find themselves in the dark, with both eyes bandaged and they do not realize where they are and may try to get out of bed or tear off the dressing. Such nervous conditions may vary from slight distress to acute delirium, and many of us have had unfortunate instances of this kind. There may be in such cases a dehydration of the nerve tissues and in one serious case we had, a woman who could not be controlled, I placed her under the care of a neurologist who by hydrating the tissues again with slow injections of water pro rectum succeeded in quieting her. Since then I insist upon my cataract patients drinking quantities of water as they lie in bed, and it certainly seems reasonable.

Dr. W. A. Fisher, Chicago: I congratulate the essayist not only on the results he had but on his excellent paper. I, too, believe that complete anesthesia is the imperative. For the last two years I have been using after anesthetizing the eye with four per cent. cocain three times, three or four minutes before the operation dropping in three or four drops of fifty per cent. solution cocain and adrenalin freshly made, as recommended by Dr. A. Vilacoro. I find it gives complete anesthesia and one does not make a jumpy patient where otherwise he would be good.

About the preoperative condition, it seems to me these operations must be classified to know what one is going to do before beginning. If one is going to extract by the Borragur method, it would not be proper to use atropin. There are so many methods of removing cataract and the preparation is quite difficult. The after treatment of cataract is very simple if the operation is uncomplicated. If a conjunctival suture is used, one can safely inspect the field earlier than if the suture is omitted. If a patient has pain, the eye is not opened, but the nurse is instructed to put two leeches on the temples and give an enema. As a rule, it is not necessary to open the eye. It is well not to touch the iris if it is prolapsed, but there is little danger of a sympathetic iritis if you wait until eye is quiet.

EYE, EAR, NOSE AND THROAT CLINIC*

Northwestern University Medical School

CHICAGO

Dr. Ralph Davis demonstrated with the Gullstrand Slit Lamp and Corneal Microscope, several patients presenting lesions of the anterior segment of the eye. Among these were an interstitial keratitis with radial folds of Descemet's membrane, in addition to the usual infiltration and vascularization of the deep layers of the corneal stroma; an aphakic eye in which a capsular cyst partly covered by vitreous, and con-

*Clinic given May 11, 1928, during annual meeting of Illinois State Medical Society.

taining opaque lens substance and proliferated capsular epithelium, was herniated into the pupil. There was also a cataracta punctata presenting some interesting features. This patient had an attack of typhoid fever at the age of twelve years, and there were numerous greenish punctate flecks in the outer portion of the adult nucleus of each lens. There were similar changes in the embryonic sutures and it was evident that in this case, at least, the anterior Y was erect and the posterior Y inverted, in accordance with the statement of Harrison Butler, although contrary to Salzmann in his anatomy of the eye.

Dr. E. Selinger discussed some of the modern developments in perimetry and campimetry, and gave a demonstration of the Ferree-Rand perimeter and the Lloyd stereocampimeter. The Ferree-Rand perimeter was believed to have certain distinct advantages over other types, one of the foremost being the uniform artificial illumination of the arc irrespective of its position, the ease with which the intensity of the light can be regulated, and special fixation devices for amblyopia, myopia, presbyopia, central scotoma, etc. On the other hand, certain disadvantages are inherent in the use of the mechanical carriage for the stimulus cards; which are overcome by the use of test objects on wands, as in campimetry. These disadvantages of the carriage are the noise, the restrictions of movement which it imposes, and its large size which interferes with testing near the area of fixation, requiring the supplementary use of the campimeter, as for example in hemianopias.

The value of using test objects of different sizes for outlining several isopters, in order to make a sufficiently complete examination to detect the less obvious defects in the fields in the early stages of certain pathological conditions, was emphasized. The value of testing the color fields, in addition to the form fields was also stressed. The various colors being component parts of white, show defects in their respective fields even earlier in the course of pathological processes than do the isopters for small white test objects. There is the additional advantage that progressing lesions are characterized by greater disparity between color fields and form fields than is the case with healed or stationary lesions. Adequate perimetric examination requires the ex-

ploration of all parts of the field, not merely the determination of the peripheral limits.

Field charts showing defects typical of some of the lesions more frequently encountered were shown and discussed, including optic atrophy, retrobulbar neuritis, homonymous hemianopia and cerebral tumor with inversion of the color fields.

Dr. William A. Mann, Jr., demonstrated with the large Gullstrand binocular ophthalmoscope a number of patients with typical or otherwise interesting lesions of the fundus. These included congenital vascular anomalies, as very large cilio-retinal arteries, looping of the superior retinal vein around the artery, and a series of pathological fundi, among which were a retinitis pigmentosa with some unusual features, an embolism of the central artery of unknown etiology, an absolute glaucoma, and a tuberculous chorioretinitis with areas of retinal detachment and retinitis proliferans.

Dr. C. H. Lockwood discussed the histopathologic changes in a number of interesting eye sections projected on the screen with the microprojector.

Dr. Gail Soper demonstrated the important features of skiascopy with cylinders, using patients with high astigmatism, so that the relation of the axis of the cylinder in the trial frame to the axis of the rotary astigmatism (angle of direction) was readily observed. The increase in size of the angle of direction with an over-correcting cylinder, and its decrease with an under-correcting cylinder was also emphasized. Velonaskiascopy was also discussed and demonstrated, using the Lindner cross and chart, it being shown that patients of normal intelligence can often detect differences of one-eighth diopter of astigmatism, by simultaneous comparison of the width of the shadows at right angles to each other.

Dr. W. F. Moncreiff discussed the Troncoso gonioscope, and demonstrated some patients with normal conditions and others with pathological conditions at the chamber angle. This instrument combines the microscope and the periscope, and is the only means available for clinical examination of the structures at the chamber angle, viz., the root of the iris, ciliary zone, the Schlemm zone, and inner surface of the sclera. The gonioscope makes these structures available

to direct observation only when used with the contact glass.

In one of the patients shown, some of the ciliary processes could be seen through an iris coloboma. In some of the glaucomatous eyes demonstrated the anterior chamber was too shallow to permit a view of the ciliary zone or the Schlemm zone.

THE NON-TEACHING HOSPITAL AND ITS OUT-PATIENT DEPARTMENT*

W. C. DANFORTH, M. D.

EVANSTON, ILL.

Properly speaking, there should be no hospital which is entirely a non-teaching institution. A hospital which is not teaching somebody is dead and should receive decent and reverent interment. A hospital may not provide for clinics and ward walks for students, but it should be a source of instruction none the less. I pass over the teaching of nurses as I am to discuss the "Relationship of the Non-teaching Hospital to the Community." Three groups of people are benefited by such an institution, if it fulfills its mission as it should. These are, the internes who serve in it and later serve the public as doctors, second, the physician whose patients are cared for in the hospital and third, the patients who in the wards and out-patient department are cared for and advised. In the care of many of these the social service department is a tremendous help.

The non-teaching institution the work of which I am to discuss consists of a group of buildings with beds for 250 patients. It contains a fully equipped laboratory with a director and assistant and a staff of technicians. All of the usual departments common to large hospitals are present in a fully developed state, including an occupational therapy department. An out-patient department is maintained with hours and attendants provided for the different divisions of medicine. The medical organization varies from that usually found in non-teaching institutions. It is divided into three divisions, the division of medicine, including neurology, pediatrics, and dermatology; the division of surgery, including orthopedic surgery, oral surgery, urology and

oto-laryngology; and the division of gynecology and obstetrics. In charge of each of these is a chief. He is responsible for all the work of his division. All work in the charity service of a division is done by men selected by the chief. These become members of his department and he is responsible for the character of their work. This necessarily entails care in selection on his part and tends to place the responsibilities of the service in the hands of men who are actually, rather than nominally, qualified to carry them. It also operates to place the opportunities of the service in the hands of those who will profit by them. This, I believe, is proper. The poor patients, who cannot select their own physicians, are well served, and at the same time the hospital is aiding in the training of physicians and surgeons whose experience and skill constantly increase in value. Even though students in classes may not be taught, a hospital in which large opportunities exist, can, by developing able young men under the guidance of an experienced chief of service, perform a service to the community. It may in this way add to the supply of properly developed specialists in the various fields of medicine. There are not too many of these, although the crop of near-specialists is beginning to cause concern in the minds of many of our sanest men.

A courtesy staff, who do not assist in the charity work of the hospital, are accorded the privileges of the institution. Its number must be limited by the physical capacity of the hospital. Their work must be of a character which, in the opinion of the chiefs of the divisions in which their work may be, will not be prejudicial to the best interests of their patients. They are welcome at all times to such aid as the chiefs or their associates can give by discussion, advice and consultation. There is no doubt that since this arrangement has been in force the average character of work done in the hospital has improved. Those who operate hospitals should not fail to realize that they owe a duty to the community beyond the mere provision of beds and nursing. A non-teaching hospital need not countenance poor work and it fails in its duty to its community if it does so. Furthermore, if it does so, the worth while doctors of the community will not support it.

The out-patient department is an important

*Read in Symposium on Medical Economics before Seventy-eighth Annual Meeting of Illinois State Medical Society, Chicago, May 10, 1928.

phase of our work. It has its own supervising nurse, records and a number of rooms fitted for various sorts of work. A waiting room of adequate size is provided. Medical attendance is provided by the younger members of the various divisions. It is open all day and in addition an evening clinic is provided for heart cases. That such a department of hospital activity is valued by the community would seem to be indicated by the usually full waiting room.

A department of social service is of great service to us. It is under the supervision of a trained social worker who has four assistants. Her office is next to the out-patient department. One of the important functions of social service is to determine whether patients applying for free service are properly entitled to it. Friendly relations with neighboring physicians are disturbed by a hospital clinic which cares for people who are not justly entitled to free care. The functions of this department do not vary from those of similar departments in teaching hospitals. It is of immense value in following up patients after discharge. Since its establishment five years ago it has investigated, followed up, or in some way served nearly 5,000 patients. It could not be dispensed with.

That work of a grade equal to that done in teaching institutions cannot be done in a non-teaching institution I believe is an error. The Mayo Clinic was for many years a non-teaching institution. No one pretends that its work was inferior or that its patients received less than patients in other hospitals. The respect in which an institution is held in its community depends entirely upon the kind of work done in it. This in turn depends upon the kind of men who work in the hospital. The community if it is worthy will respect it and support it. The rights of surrounding physicians must be carefully respected.

I close as I began. A hospital which teaches no one is already dead. If it is a source of inspiration and help to the physicians and their patients it is fulfilling a useful purpose.

In the year 1927 11.9 per cent of the work of the hospital was done for patients who paid for neither bed nor medical care. In the same year 55.5 per cent of the work done was for ward patients who paid for their beds in part or wholly. A part of these paid small sums for

medical service and were not properly service cases. It will be evident, therefore, that the institution is by no means wholly devoted to private room patients.

TINEAL DERMATITIS IN TRAUMATIC SURGERY

R. W. McNEALY, M. D., F. A. C. S.,

AND

M. E. LICHTENSTEIN, M. D.

CHICAGO

Mycotic infections of the skin are exceedingly common and are well known to dermatologists. The usual manifestations of ringworm infection are likewise familiar to most of the profession. During the last few years an increasing interest has led to the publication of many admirable papers dealing with various phases of this subject. Our attention was drawn to the importance of recognizing the presence of this group of fungi when it was discovered that ringworm infections not uncommonly make their appearance as a complication in the healing of wounds of the extremities. It is probable that in many cases the infection was present in a mild degree previous to injury and that subsequent to the trauma local conditions incident to dressings, excretions and exudations favored the rapidity of growth of the fungi with an increase in their pathogenic activities. In our experience both sexes have suffered and no preference has been exhibited for any particular decade of life. We have, however, been impressed by the frequency of cases appearing in those patients treated at one or another dressing station. Our contacts are such that we have referred cases from surgeons who are engaged principally in industrial surgery. It has been observed in more than one instance that a series of such infections would appear in the cases referred from one office; the condition assuming almost epidemic proportions. It has been our impression that these arose as a result of some lack of attention to the details of asepsis. Rosenbaum has called attention to the marked variations in the clinical manifestations and the virulence of various strains of these fungi. He cites the case of a ten year old child with a few scalding lesions on the face who infected a laboratory worker. The latter developed

severe, deep seated kerion lesions of the bearded area.

In our practice we have observed relapse in wounds which progress favorably for a while and then flare up again with hyperacute inflammatory manifestations.

Wounds or abrasions about the hands and feet are usually involved, although infection may occur anywhere over the body. We have found in our experience that infection is most common at the site of amputations of the toes. At first confined to the immediate vicinity of the wound it may spread later with considerable rapidity until it involves the whole foot and lower leg. We have had cases involving the hand but they have not occurred with such frequency nor have we had such troublesome lesions here as on the lower extremity.

Symptomatology. The clinical picture of these ringworm infections in our surgical practice may be given as follows. The patient sustains some injury to the extremity in the form of an abrasion, laceration or crushing injury. Not uncommonly an amputation of one or more digits follows and the wounds are regularly dressed by local surgeons or nurses at one of the plant dressing stations. Delayed healing usually suggests their being sent to our office for observation. Our attention is directed to the presence of the tinea infection because of an acute dermatitis which develops about the margins of the wound site. There are usually small vesicles or blebs which break open and produce a weeping surface. In those cases which have existed for some time, the condition may spread widely from the original site. Very often one sees vesicles and blebs in varying sizes and in varying stages of formation. Later there usually appears a scaling of the superficial layers of the epidermis. When a diagnosis is not made and the condition allowed to go on, the skin takes on a macerated appearance and numerous cyclic areas may be made out. In many instances a severe secondary infection may occur in the form of lymphangitis, cellulitis or adenitis and so obscure the tinea infection that it is quite commonly overlooked. In some cases the secondary infection gaining entrance through the macerated areas of ringworm dermatitis may become a serious hazard to the patient's life.

Undoubtedly the severe itching which is present in and about these wounds that have developed tinea infections encourages scratching and trauma which likewise favor secondary pyogenic invasion.

Besides the localization in wounds and abrasions of the extremities we have observed two instances where the infection began about the margins of draining sinuses subsequent to compound fractures of the tibia. Cyclic areas developed here and maceration and scaling of the epidermis continued for months as a subacute condition contributing to the unhealthy appearance of the wound. Examination showed the presence of the fungus.

Diagnosis. The diagnosis of ringworm infection can usually be made by the finding of the characteristic picture as given above. Mitchell has called attention to the necessity of making a microscopic examination in every instance. He reported a case of occupational dermatitis which was wrongly diagnosed as tinea dermatitis and was kept irritated for six months by applications of Whitfield's ointment.

When a suitable vesicle is present it is best to slice off the top, turn bottom side up on a slide and then treat with sodium hydroxide and examine with the high dry lens. We have not made cultural examinations to determine the particular type of epidermophyton which occurred in our cases. It is possible that certain strains are capable of increase in pathogenicity under favorable circumstances. The question of pleomorphism and mutation of these types may be expected to be cleared up by the many laboratory workers who are interested in these infections.

Prophylaxis. Frequent dressing of infected cases undoubtedly offers many opportunities for the spread of tinea infection to other non-infected cases which come under the care of the same nurse or surgeon. The continued unnecessary use of moist dressings should be dispensed with where possible. The substitution of other solutions in place of tincture of iodine as an emergency antiseptic probably accounts in a degree for its increased incidence. Scrupulous care in asepsis and disposal of infected dressings should be observed by nurses and surgeons. All wounds of the extremities should be kept as dry

as possible thereby limiting the growth and spread of tineal infections.

Treatment. The curative treatment of these infections has recently been reviewed by Pusey in a special article in the *Journal of the American Medical Association* (90:27, Jan. 7, 1928). It has been pointed out that the treatment varies with the acuteness or chronicity of the condition.

In those chronic cases most common about the toes and lower leg, we have found the application of half strength tincture of iodine daily for several days is often sufficient to restore the skin to its normal appearance. The use of Whitfield's ointment (Salicylic acid 2, Benzoic acid 4, Petrolatum 30) for some time following the iodine treatment with a constant effort made to keep the parts free from moisture will usually insure against recurrence. In the subsiding cases we use an antiseptic dry powder (Bismuth subiodide) as a dusting powder. When secondary pyogenic infection occurs but the parts are not acutely inflamed, we have found ammoniated mercury ointment (10 per cent.) for several applications to be sufficient to control the infection. This is followed by the same routine as used in the chronic cases when the pus infection has died out.

In cases with acute secondary infections often with lymphangitis present, it becomes necessary to resort to hot boric applications in order to control the infection. This hot dressing treatment may be replaced by moist applications of aluminum subacetate (N. F.) one ounce to one pint of warm water. With the subsidence of the acute symptoms we usually return to the use of Whitfield's ointment from one-fourth to full strength.

Where the feet are involved it is necessary to pay special attention to the regions between the toes and to keep at these for some time after all symptoms have disappeared. Recurrence and relapse is quite common in these infections and they add materially to the disability of these patients. The x-ray has been suggested by some writers. It may be used in moderate doses. It is rather striking in our work that so many of these infections go unrecognized and prolong rather simple injuries to the point where they become a great burden to the patient and to the companies carrying compensation insurance.

SUMMARY

Prophylaxis against ringworm infection should be brought to the attention of all men doing traumatic surgery.

Ringworm infections very often contribute to the chronicity of traumatic wounds of the extremities especially those about the toes.

In all chronic cases which remain moist and in which delayed healing is associated with blebs and a scaling epidermis, the presence of the tinea should be suspected.

The infection usually responds to treatment directed at keeping the wound dry and supplemented by the use of such topical applications as tincture of iodine, ammoniated mercury and Whitfield's ointment.

Ringworm dermatitis of the extremities is a frequent atrium for secondary infections many of which become serious.

IN CHINA PHYSICIANS ARE NOT PAID TO KEEP PEOPLE WELL

Among current superstitions concerning medicine is the strange notion that in China the physicians are paid to keep people well and not paid when the people become sick. Apparently this belief is so well founded that Lord Cozens-Hardy in a recent discussion before the insurance companies of Great Britain urged the adoption of this system for that country. The idea, of course, is not a new one and the practice of preventive medicine is becoming more and more a part of the regular occupation of every physician in advanced countries. Some years ago, The Journal of the American Medical Association determined to find out once and for all what basis might exist for the belief that the Chinese regularly used the system referred to. An investigation made among educated Chinese, an inquiry to the Chinese embassy in Washington, D. C., and to the Chinese consulate in Chicago, revealed the unanimous belief that such a system has not existed in China recently and probably never did exist.—Morris Fishbein, M. D., *Scientific American*, February, 1928.

Society Proceedings

ADAMS COUNTY

March 11, 1929, an Eye Clinic was held at St. Mary's Hospital from 2 to 4 p. m. by Meyer Weiner, M. D., of St. Louis, Associate Professor of Clinical Ophthalmology, Washington University School of Medicine. About 75 patients were examined.

In the evening the regular meeting was held at the Elks Club and was called to order at 8:15 p. m.

by Ralph McReynolds, M. D., in the absence of the other officers.

Dr. Meyer Wiener gave an interesting talk on "Plastic Surgery of the Eye for the Relief of Cosmetic Defects," which was followed by a lantern slide demonstration. Discussion on the talk was lead by Drs. J. C. Steiner and Walter Stevenson.

Dr. Nickerson made a motion that Dr. Wiener be thanked for coming to Quincy to address the members, and this was amended by Dr. Walter Stevenson to make Dr. Wiener an honorary member of the Society. The motion and the amendment were both carried.

The secretary read the minutes of the March Council meeting and they were approved as read. Dr. Wells reported the progress the library committee had made. Dr. Walter Stevenson made a motion, that in consideration of the frequent interruptions that we have had at meetings held at the Elks Club that the Council consider the advisability of changing the meeting place. Seconded and carried.

The meeting adjourned about 10:20 p. m.

HAROLD SWANBERG, M. D., Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Joint Meeting Chicago Medical Society and North Shore Branch, March 6, 1929.

The Interdependence of the Adrenals, the Thyroid Gland and the sympathetic Nervous System With Clinical Application—George W. Crile, Cleveland Clinic, Cleveland, Ohio.

Discussion—Prof. A. J. Carlson, Head of Department of Physiology University of Chicago; Prof. A. C. Ivy, Head of Department of Physiology Northwestern University; Linden Seed, Associate in Surgery University of Illinois.

Regular Meeting, March 13, 1929

Moving Pictures Canadian Rockies, Banff, Lake Louise and Alaska—W. H. Bell, Canadian Pacific Railroad.

The Pathology of Nephrosis—Richard H. Jaffe.

Discussion—Richard A. Lifvendahl, Harry A. Singer.

*Joint Meeting With Chicago Urological Society
March 20, 1929*

1. Disorders of Micturition—J. S. Eisenstaedt.
2. Disturbances of Urination in the Female Caused by Lesions of the Lower Urinary Tract—R. H. Herbst.
3. Urology in Children—H. L. Kretschmer.
4. Pyuria—B. C. Corbus.
5. The Problem of Hematuria—V. D. Lespinasse.
6. Cystitis—D. N. Eisendrath.

*Joint Meeting With Aux Plaines Branch
March 27, 1929*

Automatic Machinery in Bone Surgery—F. H. Albee, New York, N. Y.

Discussion—Paul F. Brown, L. W. Beebe, Chas. E. Humiston, Thos. Meany.

DEKALB COUNTY

March 28, 1929, the De Kalb County Medical Society were entertained at a 12:30 p. m. dinner by Miss Rena Anderson and her staff of nurses at the Sycamore City Hospital. Nineteen physicians were present representing De Kalb, Sycamore, Sandwich, Genoa, Kingston, Hinckley, Rochelle and Maple Park.

Dr. John W. Ovitiz of Sycamore presented a case of miliary tuberculosis of the lungs, larynx and bowel with negative physical findings in the chest. Diagnosis was made by the x-ray. Dr. Ovitiz also presented a case of miliary carcinoma of the bones in a woman aged 49, whose pain was relieved by morphin and colloidal gold.

An obscure chest case was discussed by Drs. George W. Nesbitt, D. O. Thompson, and J. W. Ovitiz of Sycamore.

Drs. Baker, Hopkins, Thompson and Rankin took part in a general discussion of the ear, lung and kidney complications of influenza.

A vote of thanks was given Miss Rena Anderson, the nurses and the Sycamore Hospital for their splendid dinner.

CLIFFORD E. SMITH, Secretary,
De Kalb County Medical Society.

Marriages

HARRY P. KNAPP, Chicago, to Miss Alice V. Deck, Dec. 22, 1928.

JOHN S. WIER, Lacon, Ill., to Miss Dixie Lois Davis of Halstead, Kan., in February.

Personals

Dr. Frank H. First has been elected president of the Rock Island Physicians Club for the year.

Dr. Charles Raimor Smith has resigned as pathologist to the Decatur and Macon County Hospital after more than three years' service.

Dr. Antonio Lagorio, director of the Chicago Pasteur Institute, completed his fiftieth year in practice, February 25, having graduated from Rush Medical College in 1879.

Drs. Harry W. Woodruff, Joliet, Ill., and William F. Moncreiff discussed strabisms before the Chicago Ophthalmological Society, March 18.

Dr. William J. Quigley has resigned as assistant clinical professor of medicine in Rush Medical College of the University of Chicago, and

Dr. Arthur L. Tatum as associate professor of pharmacology.

Drs. Henry C. Mitchell, Carbondale, and Charles D. Gardiner, Grand Tower, were guests of honor at a banquet given by the Jackson County Medical Society and the Southern Illinois Medical Society at Murfreesboro, March 28, to celebrate their completion of a half century of community service in the practice of medicine.

The fifth Ludvig Hektoen lecture of the Billings' Foundation was given at the City Club March 29, by Dr. Homer F. Swift of the Rockefeller Institute for Medical Research, New York, on "Rheumatic Fever."

Dr. Vernon C. David, associate professor of clinical surgery, Rush Medical College, Chicago, the invited guest of the Kansas City Southwest Clinical Society at its March 12 meeting, addressed the evening joint meeting with the Jackson County Medical Society on "Diagnosis and Management of Gallbladder Diseases" and "Management of Some Lesions of the Large Bowel."

Dr. Ralph Waldo Webster, clinical professor in medicine, Rush Medical College, was appointed coroner's chemist, March 19, to succeed Dr. William D. McNally, who occupied the position for about seventeen years. Dr. Webster is a graduate of Rush and has a Ph. D. degree from the University of Chicago. He was for several years on the staff of the county hospital, and is co-editor of a well known book on legal medicine and toxicology. Dr. McNally will engage in private practice.

The University of Chicago announces the appointment of Dr. Russell M. Wilder as professor and chairman of the department of medicine, to succeed, as chairman, Dr. Franklin C. McLean, whose appointment as director of university clinics was recently announced. Dr. Wilder graduated from the university in 1908 and from Rush Medical College in 1912, in which year he received also a Ph. D. for work on typhus fever done in Mexico, at the time he was associated with Dr. Howard Taylor Ricketts, who contracted typhus fever and died. Dr. Wilder served during the World War in France, and since then has been on the staff of the Mayo Clinic, where

he is professor of medicine in the University of Minnesota under the Mayo Foundation. He will come to Chicago June 1.

Dr. G. Henry Mundt addressed the Alpha Mu Pi Omega Medical Fraternity Monday evening, March 11, 1929, on the subject: "Sketches from the Life of Osler."

George W. Boot addressed the March 19 public health meeting of the Windsor Park Woman's Club on "Cancer."

L. A. Juhuke, North Shore Branch, read a paper on "Diagnosis of Uterine Hemorrhage" before the members of the Iroquois County Medical Society at Watseka, March 7.

George deTarnowsky, North Side Branch, presented a paper on "Treatment of Fractures" before the Alexander County Medical Society in Cairo on March 15.

Carl A. Hedblom, Medical Department, University of Illinois, is scheduled to give a scientific paper on "Differential Diagnosis and Treatment of Acute Abdominal Lesions" before the Sangamon County Medical Society at Springfield, April 4.

There are 60,000 births annually in Chicago. Health Commissioner Kegel is anxious to have every child immunized against diphtheria. To date about one-third of the physicians of the city have immunized 12,000 children. Their co-operation is urged to complete this work.

It is reported that President Kinley of the University of Illinois is asking the Legislature for an appropriation of \$1,500,000 for new laboratories for the colleges of medicine and dentistry near Cook County Hospital. With accommodations for 130 students in the college of medicine, an enrollment of over 350 is expected.

News Notes

—The Chicago Society of Internal Medicine was addressed March 25 at the City Club by Dr. William N. Boldyreff, Battle Creek, Mich., on "So-Called Duodenal Regurgitation."

—The Chicago Council of Medical Women was addressed March 1 by Dr. Theodora Wheeler, Rochester, Minn., on "Finesse in Medical Hygiene." The speaker April 5 was Dr. Cassie B.

Rose on "Pyelography in Diseases of the Urinary Tract."

—At a conference of the Chicago Association for Child Study and Parent Education at the Palmer House, March 9, among others, Ernest R. Groves, research professor of sociology, University of North Carolina, spoke on "The Social Ordeal of the Adolescent: The Social Life."

—A committee met at the City Club, March 18, to consider plans to oppose the antivivisection bill which was introduced in the Illinois legislature by Senator Courtney, March 7. Dr. Andrew C. Ivy, 303 East Chicago Avenue, was secretary of the committee.

—A gift of \$150,000 from the estate of the late Max Pam has been made to Michael Reese Hospital to maintain the Max Pam Metabolic Clinic, for which the hospital will furnish the equipment and quarters. Mr. Pam provided in his will that a definite amount should be used for philanthropy at the discretion of the executors and the metabolic clinic is the result. It is expected that work will start May 1.

—The Oak Park Physicians' Club and the Aux Plaines branch of the Chicago Medical Society sponsored jointly a "goiter day," April 24, when Dr. Frank H. Laley, Boston, held a clinic at the West Suburban Hospital and gave a public address at the high school. At the joint meeting of the branch with the central society, Dr. Fred H. Albee, New York, spoke on "Automatic Machinery in Bone Surgery."

—Although the University of Chicago is engaged in the development of a medical program consisting of the construction of several hospitals and research laboratories on the south side campus, the university will continue indefinitely the undergraduate instruction at Rush Medical College on the west side. For many years, these institutions have been affiliated, and Rush, since 1921, has been an integral part of the university.

—The Chicago Association of Commerce reported, March 7, that \$25,500,000 was subscribed by Chicagoans for charity in 1928 for distribution by agencies which are endorsed by the association after investigation. The report states that there are 253 agencies on the association's list. These operate not for profit and must be managed so as to win the support of business

men who require assurance that their gifts will not be consumed by inefficient organizations. Charitable agencies with solicitors of the parasitic type who work on commission in raising funds are not endorsed by the association of commerce. The list of agencies approved by the association showed total assets last year of more than \$81,000,000, with not a dollar spent on commission to attain this figure. The Chicago Association of Commerce organized its subscription investigation many years ago to prevent waste of charitable funds and to divert contributions into the right and useful channels.

—The Adolph Gehrman Lectures were delivered by Dr. William H. Park, director, bureau of laboratories, New York City health department, April 1, on "Use of Diphtheria Antitoxin and Toxin in Treatment and Immunization"; April 2, "Use of Antipneumococcic Serum in Treatment of Pneumonia and the Significance of Types of Pneumococci"; April 3, "Active Immunization in Animals and Human Beings Against Tuberculosis," in the Research and Library Building of the College of Medicine, University of Illinois.

—Senate Bill 140 would empower the department of registration to appoint an examining board "for those who treat human ailment" rather than an examining board "for the medical practitioners," as the present law provides. Senate Bill 175 prohibits cremation except on the presentation of a burial certificate and a coroner's certificate, and prohibits cremation within forty-eight hours of death except in case of contagious disease. House Bill 260 permits cities and villages to discharge sewage and effluents from sewage-treatment works into streams, after the department of health has found that the pollution will not endanger health.

—Senate Bill 231 prohibits corporations from practicing medicine or any system of healing, excepting from the provision of the bill (1) reputable hospitals; (2) corporations furnishing physicians and surgeons and rendering medical services only to their employees and dependents, and (3) corporations treating suffering by mental or spiritual means only. Senate Bill 240 regulates the distribution and dispensing of narcotic drugs. Senate Bill 241 provides for the erection of a State narcotic hospital and for the commit-

ment of narcotic drug addicts. House Bill 364 gives the claims of physicians and surgeons priority in the distribution of the decedent's funds, sharing this priority with funeral expenses, necessary cost of administration and hospital care. Senate bill 259 provides that the body of a deceased person shall not be cremated within forty-eight hours after death unless such death was caused by a contagious disease, and requires a coroner's certificate as well as a burial permit to cremate such body.

—There will be a Post-Graduate Course in Ear, Nose and Throat surgery for American Physicians at the University of Bordeaux, France, commencing July 22, 1929.

Dr. Leon Felderman, Philadelphia, Pennsylvania, is in charge of registering the American Physicians for this course.

—At the 441st regular meeting of the Chicago Gynecological Society held at the Murphy Memorial Building, March 15, 1929, the following papers were presented:

1. A comparative study of the Hormone content of Pregnant and Non-Pregnant Hypophyses—Alfons Rosthorn Bacon.

2. The Physiology of the Uterus in Labor and An Experimental Study of the Dog and Rabbit—Louis Rudolph and A. C. Ivy.

Discussion: Prof. A. J. Carlson, University of Chicago.

Deaths

LOUIS ADELSBERGER, Waterloo, Ill.; St. Louis Medical College, 1884; a Fellow A. M. A.; formerly president of the state board of health; aged 67; died, February 26, at the Barnes Hospital, St. Louis, of hemorrhage, following carcinoma of the tonsil.

HOBART HENRY BISSELL, Watseka, Ill.; General Medical College, Chicago, 1899; aged 60; a member of Illinois State Medical Society; died in San Antonio, Texas, February 25, of cerebral hemorrhage.

CHARLES WILLIAM CLEVELAND, St. Charles, Ill.; physician to State School for Boys; University of Illinois College of Medicine, 1903; aged 45; died, March 1, of erysipelas and bronchopneumonia.

HARRY LEVI DAY, Odin, Ill.; Chicago Homeopathic Medical College, 1899; a Fellow A. M. A.; aged 56; died January 24, of pneumonia.

DAVID B. EATON, Chicago; Northwestern University Medical School, 1882; aged 74; died, March 12, of myocarditis and angina pectoris.

ISAAC JOSEPH D. FRANKLIN, Chicago; Rush Medical College, Chicago, 1901; a Fellow A. M. A.; formerly on the faculty of his alma mater; on the staffs of the Norwegian-American and Lutheran Deaconess hospitals; aged 57; died, February 27, of chronic nephritis and uremia.

BENJAMIN PHILIP GALOON, Chicago; Jenner Medical College, Chicago, 1908; aged 43; died, January 29, at the Grant Hospital.

ANNIE IVES GLIDDEN, Danville, Ill.; University of Michigan Medical School, Ann Arbor, 1894; aged 60; died in February, of pneumonia following influenza.

JOHN L. HAMILTON, Newton, Ill.; University Medical College, Kansas City, Mo., 1901; a member Illinois State Medical Society; aged 63; died recently in Olney Sanitarium, following an operation for appendicitis.

HARRY HAMILTON HANLY, Peoria, Ill.; Chicago Homeopathic Medical College, 1900; a Fellow A. M. A.; Northwestern University Medical School, Chicago, 1910; served during the World War; aged 50; died, February 13.

BENJAMIN L. HOTCHKIN, Chicago; Chicago Homeopathic Medical College, 1889; aged 76; died March 15, at the Illinois Masonic Hospital, of influenza and myocarditis.

WILLIAM ENNIS KINNETT, Peoria, Ill.; Eclectic Medical College, Cincinnati, 1876; aged 80; died in February.

JOHN BETHUNE MATHESON, Chicago; Hahnemann Medical College and Hospital, Chicago, 1912; aged 53; died, February 17, of chronic nephritis and myocarditis.

ERNEST N. NEBER, Carbondale; St. Louis College of Physicians and Surgeons, 1909; a member of Illinois State Medical Society; aged 44; died, March 5, of influenza, pneumonia and appendicitis.

CLYDE W. SALISBURY, Chicago Heights, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1883; for several years member of the board of education; aged 69; died, in January, at Los Angeles, of cerebral hemorrhage.

CHARLES HENRY SOLOMON, Chicago; Northwestern University Medical School, Chicago, 1908; a Fellow, A. M. A.; member of the American Urological Association; on the staff of the Alexian Brother Hospital; aged 48; died, February 19, of adhesions, following an operation for gallstones and pulmonary embolism.

GERHARD TAPHORN, Alton, Ill.; Washington University School of Medicine, St. Louis, Mo., 1890; a member of Illinois State Medical Society; aged 64; died of cerebral hemorrhage, in Washington, D. C., March 7, while on a vacation tour which had included the South and Cuba.

AMANDA IRENE WAGONER, Chicago; University of Illinois College of Medicine, Chicago, 1915; aged 41; died, February 22, of chronic nephritis.



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Illinois Medical Journal

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No. 5

ILLINOIS MEDICAL JOURNAL

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State Society will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

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Editorial

PEORIA IS ALL SET

For the 79th Annual Meeting of the Illinois State Medical Society.

The City of Peoria is not so large that the visitor or delegate is liable to get lost in it, neither is it so small that they will have any fear of being lonesome.

The City of Peoria appreciates very much the privilege of entertaining a group of men whose vocation in life is primarily that of helping suffering humanity, and who stand for and represent a distinct and helpful cause. Particularly, is this true because the outstanding citizens of Peoria in every movement, every charitable enterprise, or anything else having to do with the building of Peoria, are always men who belong to the medical profession.

The City of Peoria will leave nothing undone to make your meeting both pleasant and profitable to all concerned. The Convention Department will maintain an information bureau at the Exhibit Hall for the convenience of the visiting delegates.

The City of Peoria has the usual things to offer that any other city might have, and also some unusual things to offer for the entertainment of the visitors—its wonderful parks, playgrounds, its scenic highways, beautiful drives and the ruins of the first educational institution, where all western education was founded—"Jubilee College". Possibly the greatest thing we have to offer is the quality of our people and their desire and willingness to make the visitor feel at home.

We know and realize fully well that the meeting of the Illinois State Medical Society is conducted strictly on a business basis, and the entertainment and pleasure part is secondary. We feel that we have made such arrangements in cooperation with the officers of the Society that will facilitate the handling of the business program.

Our mission is to render such service to the

delegates and members, that when they go away, they will have the desire to come back again.

Peoria bids you a most hearty welcome.

Yours very truly,

M. J. FINN, Manager.

Convention Department.

Peoria Association of Commerce.

THE ANNUAL MEETING

The Annual Meeting of the Illinois State Medical Society is the members own meeting. Unusual arrangements have been made for the 1929 Annual Meeting and it is hoped that the attendance will be the greatest ever known at a Down State meeting.

Every County Society should have a representative in the House of Delegates, as this Body is the Legislative Body of the Society. The Delegate selected to represent the Society should be present at the meeting and if he is unable to go, his alternate should be sent.

Each program has been carefully arranged by the Section Officers and many invited guests from all parts of the Country will appear on the Section programs during the Meeting.

PEORIA invites you to be present and not only Peoria Medical Society, but all branches of business; all professions and industries are waiting to greet you.

The Hotels are waiting to make you comfortable and they have plenty of room for all who will come to the meeting. The exhibits will be better than ever before and the exhibition Hall will look like that seen at a National Meeting. It is hoped that all in attendance at the meeting will take the time to look over all exhibits, both Commercial and Scientific. Anticipate your wants and give some orders for supplies while visiting these exhibits. Special prices will be made by most of the exhibitors for purchases made during the Session which will be a special inducement to look them over carefully.

Railroad and hardroad facilities in and out of Peoria are unexcelled anywhere in Illinois and regardless of weather conditions, the attendance should be large. The railroads are granting a special rate on the certificate plan and the one essential is the certificate, which must be asked for when the one way ticket to Peoria is purchased. As soon as the required number of certificates are obtained, the tickets will be validated

by a Railroad representative and the holder is entitled to a return rate of one-half the regular fare.

Remember the date May 21st to the 23rd and also remember that the Ladies will also be well entertained while in Peoria. The Ladies' entertainment committee and the Women's Auxiliary have arranged through the co-operation of the Peoria Medical Society for many entertainment features for the Ladies in attendance.

Let us all work together to make the 1929 Annual Meeting the best the Illinois State Medical Society has ever had.

REDUCED RAILROAD FARES FOR 1929 ANNUAL MEETING

The railroads have granted a reduced rate for the Peoria meeting on the Certificate plan, providing 150 certificates are presented for validation. Every one going to Peoria by rail should ask for a Convention Certificate when purchasing a one-way ticket. When the required number of certificates are obtained, they will be validated by a railroad representative, and an officer of the Society, and the holder will thereby be entitled to a reduction of one-half of the return fare, when purchasing his ticket home at Peoria. There should be no trouble in procuring the required number of certificates, if everyone will remember to ask for the Certificate when purchasing their ticket to Peoria.

HOTEL RESERVATIONS

Make your hotel reservations early, with Dr. W. A. Malcolm, Chairman of the Reservations Committee, 604 Peoria Life Building.

LEADING PEORIA HOTELS HOTEL AND RATES

Number of Rooms Location and Phone No.	—Single—		—Double—	
	With Bath	Without Bath	With Bath	Without Bath
Pere Marquette—400 rooms..	\$3.00	....	\$5.00	....
Cor. Main and Madison.	to		to	
Phone 4-2121.	5.00	....	8.00	....
Jefferson—400 rooms.....	2.50	...	4.00	....
Cor. Jefferson and Liberty.	to		to	
Phone 4-1151.	4.00	....	6.00	....
Mayer—200 rooms.....	2.50	\$1.50	4.00	\$2.50
Cor. Adams and Hamilton.	and	to	to	
Phone 4-5155.	3.00	1.75	5.00	....
Metzger—126 rooms.....	....	1.00	....	2.00
214 N. Adams.		to		and
Phone 4-5191.	....	1.50	....	2.50
New National—119 rooms.....	2.50	1.25	3.50	2.50
217 N. Jefferson.	and	and	and	
Phone 4-4171.	3.00	1.50	4.00	....

HOTELS AND RATES—Continued

Niagara—110 rooms.....	\$2.50	\$1.50	\$4.00	\$2.50
108 S. Jefferson.	to	to	and	and
Phone 4-3178.	3.50	2.00	5.00	3.00
Pascal—110 rooms	2.00	1.50	3.50	2.50
Cor. Adams and Hamilton.			and	
Phone 4-5105.	....	....	4.00	....
Fey—100 rooms	2.50	1.50	4.00	1.00
Cor. Adams and Liberty.				
Phone 4-7107.				
Seneca—80 rooms	1.50	....	3.00	....
Cor. Jefferson & Harrison.	to		to	
Phone 4-5111.	2.50	....	3.50	....
Endres—45 rooms	1.50	.75	2.50	1.50
209 E. Franklin.		to	to	
Phone 4-1503.	....	1.25	....	2.00
New Yale—43 rooms.....	1.50	....	2.50	....
Jefferson at Franklin.	and		and	
Phone 4-3120.	2.00	....	3.00	....
Harold—42 rooms		1.50	....	2.00
217 Main.				
Phone 4-3105.	....	....	....	3.00
Meek's—33 rooms .....		.75	....	1.50
316 Fulton .		to	and	
Phone 9217.	....	1.50	....	2.00

A widely known traveler and author after spending some years in Peoria acquiring inspiration for his works, left a heritage to the city when, describing the rugged scenery, he said: "Nowhere in the wide world is there to be found such mundane beauty as from the bluffs of Peoria, overlooking the Illinois river."

Rich in romantic lore, this garden spot was as early as two hundred and fifty years ago the

tending from two hundred to five thousand feet back from the river's shore, when it rises into majestic bluffs from two hundred to four hundred feet high. The hills and dales are wonderfully rich in brooks and woodlands, and occasionally gorgeous canyon and waterfall formations are encountered. Peoria lake, too, affords ample opportunity for every water sport.

With its temperate climate and healthful environs, its wealth of historic lore and great industrial projects, Peoria is keenly sought out by tourists. Vacationists are drawn from far-away points and the sporting season leaves the nimrod fully repaid. Week-end and over-Sunday parties find it a most inviting objective.

With its loyal, friendly spirit, recognized nation-wide, and its superior transportation, housing and assemblage accommodations, Peoria is one of the greatest convention cities in the mid-
dle west.

Peoria welcomes you and bids you partake of her inspiration and her hospitality.

Peoria is situated near the center of Illinois, on a direct paved highway from St. Louis to Chicago, along the scenic route of the Illinois River Valley. It is easily accessible from every part of the country. In addition to eight paved highways, leading into the city, Peoria is served by fifteen railways, steam and electric, and several motor bus lines. Peoria is an air port on the Chicago-to-Gulf air mail line.

Whether you come to Peoria for a visit or intend to make your home here, you will be impressed with the metropolitan appearance of the city, the hospitality of the people and the ideal living conditions.

Tourists are attracted by scores of interesting points in and around the city. Peoria has five beautiful parks, covering a total of 1,225 acres, many beautiful drives, a score of public playgrounds and four golf courses. Grand View Drive, overlooking Peoria Lake and the beautiful Illinois River Valley is praised by tourists throughout the country.

Peoria's eight miles of river frontage, together with Peoria Lake, affords every form of boating and water sports. In addition to these, there are six enclosed swimming pools and two large modern public pools.

Peoria is the shopping center of down state Illinois. Seven large department stores and many specialty shops, afford every shopping advantage found in larger cities.



Jefferson Hotel

site of a French mission and trading post, where contact was had with the powerful tribes of Illinois Indians, and the site of the city of Peoria was chosen and named after one of these tribes.

The general topography is a flat plateau ex-

The city has exceptional educational advantages, including Bradley College and the Peoria Art Institute. It is noted for its beautiful churches.

Twelve theaters offering a variety of the best productions the year round, several fine clubs and four country clubs afford many forms of recreation.

Greater Peoria has a population of 117,095. One hundred twenty-five major manufacturing plants and 225 smaller ones have invested \$129,000,000.00 in Peoria. These industries have an annual output of \$212,000,000.00 and a pay roll of \$40,000,000.00.

Among the nationally advertised products manufactured are tractors, washing machines, agricultural implements, furnaces, oil burners, stock feeds, food products, candies, cereals, cigars, steel and wire, cordage, etc.

Peoria leads the world in the production of commercial solvents and ranks first in the manufacture of high priced washing machines, and track laying type of tractors.

Peoria is in the center of a rich agricultural section and its live stock market is the second largest in the United States from the standpoint of motor truck receipts.

Peoria entertained 116 state, national and international conventions during the past year.

Among some of the national conventions recently attracted to Peoria, "The Cogential Convention City," were the National American Business Club, National Altrusa Club, American Bowling Congress, the Saengerbund of the Northwest, American Poultry Association, the National D. O. K. K., National Swine Show and many others.

Peoria is just "one sleep" from three-fourths of the total population of the United States. It has splendid hotel accommodations with reasonable rates, with a convention capacity of 7,500.

THE EXHIBITS

According to the usual custom, there will be many Commercial and Scientific Exhibits at the meeting. The Commercial Exhibits will exceed any shown at a previous down-state meeting. These have been carefully selected, and no concern will be allowed to exhibit, which is in any way objectionable.

Everything in the way of up-to-date equipment, supplies, and accessories for every branch of Medicine and Surgery, will be shown. Many pieces of expensive but necessary apparatus will be among the exhibits. Everything used by any practitioner of medicine and its specialties will be found among the displays. It is hoped that



Pere Marquette Hotel

every member and visitor at the meeting will spend as much time as possible among the exhibits, and see what these houses are doing in their Laboratories and Research Departments to aid the practitioners.

Many interesting things will be found among the Scientific Exhibits. The American Medical Association will have an unusually interesting Educational Exhibit. The Illinois Department of Public Health will show what the State is doing in its effort to control and stamp out communicable diseases.

A MESSAGE TO OUR EXHIBITORS

The exhibits to be shown at the 79th Annual Meeting of the Illinois State Medical Society have been carefully selected. We have tried to arrange the meeting to suit your convenience best. The Exhibition Hall is unusually well adapted for exhibition purposes. There will be attendants present to assist you in every way possible.

The electric current available for all exhibits is 110-220-60 Cycle AC. Electricians will be on hand to do the wiring you will need.

O'Neill Brothers Transfer and Storage Company, 619 South Water Street, Peoria, has been selected to receive all consignments sent in their care,—they will store them safely, and deliver them on the floor of the Exhibition Hall Monday morning, May 20, 1929.

The Illinois State Medical Society is interested in your interests, and we want to aid you in every way possible, so that your accessories can be shown to the best advantage. Representatives of the Society, and the Committee on Arrangements will be on hand early Monday morning, May 20, to render whatever assistance you will need.

If you want special furniture, rugs, lamps, etc., you may have same arranged for, by writing M. J. Finn, Convention Manager, Peoria Association of Commerce, Peoria, Illinois.

GOLF—GOLF—GOLF

The Peoria Medical Society has arranged with the various Country Clubs in and around Peoria, so that all visiting physicians and their guests may play golf during the meeting by paying the usual greens fees. Peoria is noted for its fine golf courses and no doubt many will avail themselves of this opportunity.

Through the courtesy of Doctor George W. Michell, a member of the Peoria Medical Society and the Committee on Arrangements, a golf driving contest will be held on the Michell Farm Links, for all members of the Illinois State Medical Society living outside of Peoria. The physicians driving nearest the cup will be awarded as first prize a driver and brassie. The second prize will be a box of golf balls. Third prize, one half dozen balls, fourth prize, four balls and fifth prize, two golf balls. There will also be a pitching contest with number five mashie. The one getting nearest the cup will be awarded as first prize, a set of six stainless steel irons, the second, third, fourth and fifth prizes will be the same as those in the driving contest. If there are any ties, winners will be named through the drawing of lots.

These contests will be open to all members of the Illinois State Medical Society outside of Peoria and contestants may appear at the links at any time during the meeting.

There will be cars at the Pere Marquette Hotel to transport physicians to the Farm. Get the old clubs shined up, practice driving and pitching and win one of these prizes during the meeting.

VIOLETION OF THE CODE OF ETHICS AND NOT ECONOMIC ACTIVITIES RESPONSIBLE FOR THE EXPULSION OF DR. LOUIS E. SCHMIDT FROM THE CHICAGO MEDICAL SOCIETY

Violation of the accepted code of medical ethics by a reputable physician is as drastic a breach of faith in the medical profession as is military high treason in time of war.

The status of Dr. Schmidt with the Chicago Medical society has been adjudged merely from a standpoint of medical ethics. Only after long and patient consideration of Dr. Schmidt's disregard of the ethical phase of practice was his expulsion from the Chicago Medical society held to be without alternative. The nature of any service rendered by Dr. Schmidt was in no sense a factor. Since the action of the Chicago Medical society, certain interests have seemed to try to impugn the motives underlying Dr. Schmidt's expulsion.

Let it be understood that Dr. Schmidt was not on the carpet before the Chicago Medical society

for any action on his part that had anything at all to do with questions of medical economics, but only on account of those details that deal with medical ethics. The two are as wide apart as the poles and must not for an instant be confused in the lay mind.

Medical ethics, based on the Hippocratic oath and antedating the Christian era, deal entirely with the code of medical behavior as a creed of moral guidance in the relationships between student and teacher physicians; and between physicians and patients; and between physicians and fellow-practitioners and the general public. These traditional principles are binding on all reputable physicians and are intended primarily to safeguard the interests of patients.

It is upon a violation of this credo of medical ethics, and upon this alone that Dr. Schmidt has been tried and condemned by the Chicago Medical society.

Dr. Schmidt's specific violation of the code of medical ethics lay in his connection with the Public Health Institute through its association with the Illinois Social Hygiene league of which Dr. Schmidt is president, an organization operating in direct violation of the code of medical ethics. Not only is the Public Health Institute a corporation practicing medicine, but from an ethical medical point of view, its methods of such practice have been held to be not only dubious, but actually objectionable, especially in the manner of approach to the public.

There has never been in this case any question of medical economics considered except in the minds of those who have tried to read such an interpretation into the controversy. The cost of medical care, either to the physician, or to the patient, has nothing to do with Dr. Schmidt's troubles.

The crisis has not arisen from what Dr. Schmidt chooses to call his attempt to reduce the cost of venereal disease care to the general public, or to any individual patient or group, since where such care is needed, and the patient or patients are unable to pay for it, any reputable physician has always been willing and eager to give such care without charge and with full protection and privacy to the individual.

Medical service has shown the least post-bellum increase to the consumer and the greatest to the dispenser of any other fundamental. The ratio

of increased cost of practice to the physician is in no degree covered by the ratio of increased cost to the patient. For example, the ratio of increase for general living is quoted as 66 per cent, while the ratio of increase for medical service is quoted as only from 35 to 50 per cent.

These figures, of course, have nothing to do with hospital care, where the increase has been considerably higher, even reaching a ratio of as high as 88 per cent, an increase that is offset to some degree by the increased efficiency that medical service has brought to these institutions, which, as a result, can now manage to cut down the stay of a patient in such proportion that increase in expenditure is met by decrease of sojourn.

Even at that, with this 88 per cent increase in hospitalization to be considered, the bureau of statistics of the labor department at Washington claims that in the United States the cost of health maintenance has not increased as have other costs of living.

The average physician devotes voluntarily at least half of his time and at least 40 per cent of his earnings to charity.

Ethical medicine is founded upon a doctrine of mercy. In Chicago, the medical profession gives approximately \$18,000,000 a year to free medical and surgical treatment. During 1928 nearly 3,000,000 free treatments were offered by Chicago's ethical medical charities. Hospitals alone rendered gratuitous services valued at nearly \$8,000,000, of which 66 per cent represents surgical work. All of this means money out of the doctor's pocket. In the face of such figures, the disinterested layman can readily agree that to a reputable doctor ethics means more than economics.

IS NOT A CODE OF ETHICS NEEDED
FOR THE CHICAGO ASSOCIATION
OF COMMERCE?
HONOR AND ETHICS ARE ASSETS THAT
ARE NOT TO BE HAD IN THE
MARKET

The action of the Chicago Association of Commerce in passing a resolution roundly condemning the Chicago Medical Society for matters on which it had taken no action, and thus clouding the real point at issue, i. e., the ethical dispute between the Chicago Medical Society and the recently ousted former member, Dr.

Louis E. Schmidt, is a rare example of the fallacy of leaping before looking. It is also, a pointed example of meddling with one's neighbor's personal affairs and acting arbitrarily after hearing only one side of the story, and listening with ears unattuned to the verities of the situation. To men and women of any perspective at all, it is evident that if the Chicago Association of Commerce acts in all instances upon such false premises and biased hypotheses as were the basis for its action in this case, and with the insistent and precipitate haste, and with the involved secrecy characteristic of that of April 12, then surely any pronouncement issued by this body on any subject, deserves to be taken with at least two grains of salt. Such an instance of railroad-ing, aye, almost jobbing an issue through, as is revealed by the appended excerpts from relative correspondence, leaves doubt in the minds of men, not only as to what might have been the association's motive in this instance, but also, if in this, why not in others?

Rarely has the Chicago Association of Commerce been as interested in any scientific procedure as in the disciplinary action taken by the Council of the Chicago Medical Society against Dr. Louis E. Schmidt. Oddly enough the Chicago Association of Commerce though excluding from the meeting any members of the Chicago Medical Society, even though these happened also to be members of the association itself, did have in and did listen to, representatives of various social agencies, none of which, nor their representatives had any bearing at all on the Schmidt case. The matter at issue was not the distribution of medical care to persons too poor to pay for that service. The society's disciplinary action was merely a point of ethics, and concerned the society and Dr. Louis E. Schmidt and not the Chicago Association of Commerce at all. The honorary and eleemosynary quality of ethics is not a matter of trade and barter. Honor and ethics are assets that are not to be had in the market place.

Another item for thought conducive to judgment lies in the fact that *the resolution of the Association of Commerce condemning the Chicago Medical Society was introduced by a member of the executive committee of the Chicago Association of Commerce who was a founder and is a member of the board of trustees of the Pub-*

lic Health Institute and who as a consequence from his executive position with the Chicago Association of Commerce passed on the fate of his own resolution. This gentleman was, *to be explicit, judge, jury, prosecuting attorney and hangman,* with naturally enough an ear for only his own.

No comment on the correspondence could be half so revelatory as the correspondence itself.

April 20, 1929

J. P. Haynes, Executive Vice-President,
Chicago Association of Commerce,
10 South LaSalle Street,
Chicago, Illinois.

Dear Mr. Haynes:

I believe that I have neglected thus far to confirm our telephone conversations of April 12 and 13, relative to the meeting of your Executive Committee which took place on the former date.

You will remember that I called your office on the morning of April 12 and said that as I had noticed in the morning papers the Association of Commerce was to discuss the matters pending between Dr. L. E. Schmidt and the Chicago Medical Society, I would like to know if the meeting of your Executive Committee was to be an open one, and if so, I desired to be present, both because of my membership in the Association and also because the Chicago Medical Society's action was to be discussed. You advised me that this was not to be an open meeting, but an executive session at which the members of your Executive Committee only would be present.

Much to my surprise I learned later from newspaper reporters and the daily press that my information regarding this meeting had not been correct in that an open meeting had been held at which a number of invited guests were present and spoke, among them being representatives of various social agencies, the Coroner of Cook County, and others. I called you on the morning of April 13th and asked an explanation of this meeting of your Executive Committee, the conduct of which was the exact opposite from the information you had given me the day previous. You replied that these guests had been invited by the President of your Association, Mr. Frank F. Winans, and you were unable to give me any satisfactory explanation as to why, as a member of your Association, my request to at-

tend this meeting of the previous day had been refused.

Sincerely,

Chicago Medical Society,
(Signed) F. L. Rector,
Executive Secretary."

The following reply to this letter was received:

"The Chicago Association of Commerce
10 South LaSalle Street
CHICAGO

April 24, 1929

Dr. F. L. Rector, Executive Secretary,
Chicago Medical Society,
185 N. Wabash Avenue,
Chicago.

Dear Dr. Rector:

I am anxious that you should have some further specific information concerning the matter to which you refer in your letter of April 20th because I am convinced that you are entitled to have these facts.

The officers of our Association gave the most careful thought and consideration regarding our position concerning the medical charities, which after proper investigation, had been endorsed by The Chicago Association of Commerce.

The press reports made it clear that the highly valuable service of the medical charities were involved in the controversy which was receiving such wide publicity. It was therefore primarily and exclusively a matter of anxiety on the part of our Association that the good work of these medical charities should not be handicapped which caused our Executive Committee to authorize President Winans to appoint a special committee to meet with a similar committee from the Chicago Medical Society.

Our Executive Committee could not invite the Executive Secretary of the Chicago Medical Society to attend this meeting without, at the same time, inviting Dr. L. E. Schmidt. Certain physicians who were invited for confidential council are most sympathetic towards the Chicago Medical Society and they are also medical men of national reputation.

May I also state that the special committee which President Winans has appointed, the personnel of which we sent to you, includes outstanding citizens who also have the deepest respect and sympathy concerning the work of the Chicago Medical Society. You may rest assured that this Committee has as its supreme purpose

a sincere desire to be entirely fair to all parties concerned.

Very sincerely yours,
(Signed) J. P. Haynes,
Executive Vice-President."

The meeting of the Executive Committee of the Association was held; but, instead of its being an executive session, it was found that a number of persons representing interests entirely foreign to the Schmidt case had been invited and had attended the meeting. The outcome of this meeting was the passage of a resolution which, we are reliably informed, was introduced by Mr. A. A. Sprague, a member of the Executive Committee of the Association and also a trustee of the Public Health Institute.

As will be noted by reading the resolution, published last week in the BULLETIN of the Chicago Medical Society, the Medical Society was roundly condemned for matters on which it had taken no action, and the names of other organizations, such as Infant Welfare Society, the Visiting Nurse Association, St. Luke's Hospital, Chicago Lying-In Hospital, the University of Chicago, Northwestern University, the University of Wisconsin and the Rosenwald Foundation, were brought into the picture without any justification in fact or in reason. Both before and since this time the Medical Society had been working on a friendly basis with these local institutions, and by no stretch of the imagination could they be considered a party to the issue between Dr. Schmidt and the Medical Society.

It was stated in the press that Mr. Philip D. Armour of the Infant Welfare Society and Mr. E. L. Ryerson, Jr. of the Chicago Council of Social Agencies were invited to this meeting, as were Dr. Frank Billings, Dr. Joe L. Miller, Dr. Franklin McLean and the Coroner of Cook County. Our information is that the Executive Committee was urged by at least one of the invited speakers to defer action upon the resolution which was later passed until the Medical Society could have an opportunity to state its position, but a member of the Executive Committee was reported as objecting to delay in the passage of the resolution; and when the vote was taken there was but one dissenting voice.

Following the passage of the resolution by the Executive Committee, President Winans appointed a committee from his Association consisting of Mr. Clifford W. Barnes, Vice-Presi-

dent of the Association, Chairman; Mr. James B. Forgan, Jr., General Secretary of the Association and treasurer of the Chicago Chapter of the Red Cross; Mr. Edward L. Ryerson, Jr., President of the Chicago Council of Social Agencies; Mr. Charles M. Moderwell, President of the Union League Club; and Mr. Ezra J. Warner, President of Sprague, Warner & Company.

It is interesting to note that Messrs. Forgan and Ryerson, two of the five members of the committee appointed by the Association of Commerce are officers in local social organizations that are cited in the resolution passed by the Executive Committee at its meeting on April 12.

HIPPOCRATES TO THE RESCUE

Making friends with the Mammon of iniquity has resulted in many a queer bed-fellow for medical ethics and the casting out of many a care-taker from the temple. In fact, so far have many of the most ethical among us strayed from the letter, if not the spirit of our youthful enthusiasm that it is doubtful whether many more of us can repeat with exactitude the Hippocratic oath than can sing word for word and note for note, "The Star Spangled Banner."

For the benefit of those who may have forgotten, or who may have failed to appreciate in the days of their youth, the power and beauty of the Hippocratic oath, that creed of the faith and goodworks of the medical profession as it is the dedication pledge of the self sacrifice necessitated from the ranks of the faithful, this oath is reprinted. Its perusal with care will be an excellent thing for every adult citizen in Illinois.

Even the laity will find food for thought in this beautiful teaching upon which is based the ethical code of scientific medicine. The oath is as follows:

"I swear by Apollo the physician and Aesculapius and health and all healing and all the gods and goddesses that according to my ability and judgment I will keep this oath and this stipulation. To reckon him who taught me this art equally dear to me as my parents, to share my substance with him and relieve his necessities if required. To look upon his offspring in the same footing as my own brothers and to teach them this art if they shall wish to learn it without fee or stipulation; and that by precept, lecture and every other mode of instruction I will impart a knowledge of the art to my own sons and those of my teachers and to disciples bound by a stipulation and oath accord-

ing to the law of medicine but to none others. I will follow that system of regimen which according to my ability and judgment I consider for the benefit of my patients and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked nor suggested any such counsel and in like manner I will not give a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my art. I will not cut persons laboring under the stone but will leave this to be done by men who are practitioners of this work. Into whatsoever houses I enter I will go into them for the benefit of the sick and will abstain from every voluntary act of mischief and corruption and further from the seduction of males or females, of freemen or slaves. Whatever in connection with my professional practice or not in connection with it I see or hear in the life of men which ought not to be spoken of abroad I will not divulge, as reckoning that all should be kept secret. While I continue to keep this oath unviolated may it be granted to me to enjoy life and the practice of the art, respected by all men in all times; but should I trespass and violate this oath may the reverse be my lot."

CHARACTER OF SERVICE GIVEN AT PUBLIC HEALTH INSTITUTE OF CHICAGO CAN NOT STAND UP UNDER THE X-RAY OF INVESTIGATION

EMPLOYEES WHO KNOW REVEAL METHODS OF
THIS MEDICAL FACTORY WITH EFFICIENCY
OF TREATMENT SUBSERVIENT TO EFFICIENCY
OF ROUTINE AND RECORDS,
NOT RESULTS, THE MAIN IDEA

To the efficient scientist and humanitarian, the methods and practices of the Public Health Institute savor of the nature of inefficiency. Nor is there, in the minds of competent judges, any excuse for the existence of the Public Health Institute on the ground that it fills a single need.

No less a personage than Dr. Irving S. Cutter, dean of the School of Medicine of Northwestern University, made the frank comment, that later was published in the daily newspapers, that the Public Health Institute served no particular need in the community. He said that he did not consider the Public Health Institute an asset to the public. "Medical care offered by the public Health Institute, in my opinion, is not what many believe it to be," said Doctor Cutter.

Dr. Cutter's statements have substantial backing from several Chicago physicians who for-

merly were members of the staff at the Public Health Institute and who are thoroughly familiar with the institution's precepts of "piece-work and get the patient." Statements from these physicians would bear out the fact that the old time "male and female specialists" had methods of quackery that even this day and age have not improved upon.

These former P. H. I. staff members make no bones of accusing the Public Health Institute of these errors, among others:

1. Determination to prove all applicants patients.

2. Referring of destitute patients to free dispensaries.

3. Careless, non-individual treatment in cases of those private diseases where medical science has long held that the greatest of care and of patient individual attention was a large factor in public protection and in individual cure. This also acts as a factor in prolongation of treatment.

4. Factory system of time-clocks for staff and delicate insistence of maximum treatments per diem rather than maximum results per patient.

5. Lack of just discrimination as to economic status of patients, in that no attempt is made to discover whether applicant can afford to pay for private treatment, but only whether he or she cannot afford to pay for Institute treatment.

6. Complete commercial rather than scientific and medical perspective upon all patients who are proper subjects for venereal disease treatment.

Excerpts from statements signed and made by these two former staff members may be of interest:

"Among my patients were one lawyer, two civil engineers, one owner of a large restaurant, one church organist, and the general western manager of an automobile editor. One of my patients offered to take me around the world, paying all expenses and to give me \$5,000, if I would go."

"A patient with stricture may have sounds used on him by six or eight different physicians, some of whom may be competent and others indifferent, and consequently incompetent. The result of this is frequent hemorrhages from urethra with proportionate retardation of progress. Because of this, many patients are under

treatment at the P. H. I. for two years and even longer.

"Improper supervision of irrigation in acute cases leads to many cases of acute epididymitis.

"The physician supervising the irrigations will instruct the patient on his first visit, but thereafter the patient does his own irrigations. The Public Health Institute claims a low incident of secondary infections but the facts are that their method in irrigating is responsible for hundreds of such cases every year.

"No real charity is given at the Public Health Institute. Those unable to pay are referred to free dispensary. If a patient gets in arrears a red circle is drawn around the amount and when it reaches a certain mark he is referred to the medical director before allowed to continue treatment.

"Advising treatment for those that have never been infected is another error. In the routine examination, even when patient denies ever having a gonorrheal infection, if there is a slight roughening or constriction of urethra, that patient is advised to have soundings.

"Improper sterilization of instruments is another fault. In the peak hours of the Public Health Institute's day from 6 p. m. to 8 p. m. hundreds crowd in for treatment. In the stricture department sounds are often removed from sterilizer after incomplete sterilization with the result that many acute infections are passed out with the treatments.

"Through the number-chart system it is possible for patient to get wrong chart and have wrong treatment rendered. Example, boy 18 years of age who denied even having intercourse, returned to Public Health Institute to find results of examination he underwent the preceding day. He got the wrong chart, was directed to the stricture department where large sounds was passed on him. He had a severe hemorrhage and subsequently an acute epididymitis. Later this boy brought suit against the institute.

"The employment of physicians of foreign birth with little knowledge of English, renders it difficult for patients to acquaint physicians with their conditions.

"The punching of time clock with a daily check on number of patients turned out by individual physicians augurs for piece work efficiency of a first class factory, but is decidedly against the well-being of the patients. The phy-

sicians know that where their quota of patients per hour is low they might be reproved for slowness.

"Overtreating patients is a P. H. I. fault with daily treatments for about two to two and a half months, and even bi-weekly and weekly smears for about six weeks. Treatment during menstrual periods of the urethra only regardless of the fact if there is urethritis or not. Also there is selling of a urinary bladder sedative "Gonosan" to all gonorrheal patients regardless of the absence of urethritis or cystitis (clinically and bacteriologically). Every new patient undergoes three examinations: first, general; the other two in successive days for a thorough search of gonococci in the smears regardless of absence of clinical signs or suspicious history or even lack of exposure, as some patients come for a prophylactic examination only.

"Routine eye-ground examinations on every patient, leucic or gonorrhoeal, or absolutely negative in every way, even in those in which neurosyphilis latent is improbable (i. e., very recent exposure for the first time, a week or two before) for an additional fee. Thus every patient that finally proves to be free from lues and gonorrhea pays for three examinations and one additional fee for ophthalmoscopic—which amounts altogether to six dollars, the amount of money that the advertisement costs per patient.

"(Lately ophthalmoscopic examinations were omitted from the routine.)

"A very marked anxiety exists not to inform the patient of the venereal disease after the first examination, if findings were positive, and withdrawing of the provisional diagnosis until all examinations were completed, if on first examination the smear proves to be negative, because, as they say, that would encourage the patient to stay away from the clinic.

"The Doctors are not permitted to refer a case to a clinic or private physician for treatment of non-venereal ailments, but they must send patient to the medical director, who refers them to a surgeon of his own choice. The work is very speedy. Patients are not individualized; complications of female gonorrhea were very poorly diagnosed (when I was in that department).

"A strong desire exists to disregard the treatment of any ailment independently of how important it is for the sake of completion of the

three routine examinations on an actually negative patient.

"Physicians are valued by their spiritual cooperation and speed. The speed is checked daily by the office and this creates competition between doctors to do the maximum amount of work. Doctors punch their time—four times daily—'one minute late' is a grave offense. Doctors there really act more as technicians than physicians, as they must follow within details the routine and must not use their judgment, particularly in discharging a patient.

"What is done by supervision in the woman's department is unfortunate, as the superior is the most ignorant man of all, but understands very well how to please and keep a patient the longest.

"Most interesting are the speeches of the medical director at the monthly meetings. These show strikingly his business ability and inclinations. Female gonorrhea patients are poorly treated, but worse of all is the treatment of pregnant women sick with gonorrhea or suspected of having it. Hot irrigations, in acute stages in early pregnancies; routine intra-cervical manipulations, even at the last month of pregnancy in cases having lues only or negative and free from clinical signs and suggestive history. Routine is the most prominent feature in managing a patient."

Further proof of inefficient treatment is shown by the following: "Young married woman two months pregnant, hemorrhaging, threatened abortion, worrying over her condition, attracted to the Public Health Institute by reading newspaper advertisements. First day, smear taken, which proved negative, Doctor on duty advised patient to bed, in the hope of preventing final abortion. Treating physician called on the mat for giving this scientific and up-to-date advise. Superior officer, took the position that patient should have been instructed to return each successive day for three days, in order to prove or disprove gonorrheal infection. It is quite evident that the two dollar extra fee for smear examination, was more important from the Public Health Institute standpoint, than was the possibility of staving off the abortion to say nothing of the added danger to the young woman's life had the abortion finally happened."

For the trained medical man these revelations are sufficiently elucidative without comment.

THE A. M. A. EDITORIAL ON THE OUSTER OF DR. LOUIS E. SCHMIDT

Attention is called to the editorial in the *Journal of the A. M. A.* under date of April 20, on page 1350, entitled "The Chicago Public Health Institute Has a Newspaper HOLIDAY."

This editorial deals with the ouster from the Chicago Medical Society of Dr. Louis E. Schmidt. All readers of the ILLINOIS MEDICAL JOURNAL are asked to peruse this editorial. Not only is the article an excellent commentary on the situation but it throws possible light on the motives that actuated the newspapers, in presenting only one side of the controversy.

The A. M. A. editorial on the case is a perfect thing of its kind.

HEARING ON THE COURTNEY ANTI-VIVISECTION BILL

The hearing on the Senator Courtney Antivivisection Bill was held in the City Council Chambers of the City of Chicago, Friday, April 19th, at 2:00 P. M.

Friday morning the Committee visited the laboratories at Northwestern University Medical School. They were shown animals that had been operated upon and they saw the medical students working in the physiology laboratory. The Senators were interested and asked pertinent questions which were answered and explained.

The following men spoke in favor of the Bill: Attorney Snee of Springfield, Illinois, Dr. Held, and Mr. Codman, Vice-President of the New England Antivivisection Society. Mr. Snee made a bombastic and an emotional appeal, which was ineffectual because the Committee members "know" him well. Dr. Held stated that the bill was too fanatical, that he was in favor of some types of animal experimentation, but that other types were unnecessary. Mr. Codman presented a good argument, reading quotations from Dr. Richard Cabot's (Boston) writing, the latter supporting animal experimentation but taking the position that some forms of it are unnecessary, and from the American Journal of Physiology on starvation and parathyroid tetany experiments.

The following spoke against the Bill: Dr. John R. Neal, Dr. Frank Billings, President Scott, President Kelly, Vice-President Rowland Hayes, who represented Acting President Woodward,

Dean Emeritus Davenport, who represented President Kinley, Dean Mulford and Professor Graham of the Department of Agriculture, C. I. Moulton of the Packers' Institute, Dr. Lena Sadler, Dr. Andy Hall, Dr. A. H. Kegel and Dr. A. J. Carlson.

Dr. John R. Neal was the floor manager and performed his duties ably. Dr. Frank Billings spoke on the meaning of Animal Experimentation to Medical Progress and Human Welfare. President Scott stated that he was for animal experimentation because it has done and will perform a great service to humanity, that he had visited the animal laboratories frequently with visitors at all times and saw no evidence of cruelty, that the animals were well cared for and lived in "palaces almost," and that visitors were always welcome, all doors being wide open at all times. President Kelly spoke on the ethics and morals, stating that it was our moral duty to perform animal experiments in order to allay and prevent human suffering and that animals should be treated humanely, but that they were created primarily for the service of man. Vice-President Hayes read a letter from President Woodward which pointed out the fact that medical and biological education and progress depended chiefly on the method of animal experimentation and that the high character and nature of the men doing such experiments guarded against any cruelty and unnecessary suffering of the animals. Dean Davenport pointed out the economic advantages of animal experimentation. Dean Mumford stated that animal experimentation was necessary to tell the farmers how to best feed their stock and prevent disease, and pointed out that mouse and rat traps caused many times more suffering than animal investigation. He stated also that if the Antivivisectionists were logical, they would attempt to pass a law against rat traps. Professor Graham cited several instances in which animal experiments have prevented deaths of large groups of animals and great loss to the farmers. Mr. Moulton presented figures in the numbers of lives of animals and in dollars concerning the benefits of animal experiments to animals and man alike and showed that this bill would influence the economic situation of every person that wears leather shoes, woolen clothes and eats meat. He pointed out that the hunters and trappers caused much more

distress to animals than experimentation. Dr. Lena Sadler spoke on the benefit of serums and antitoxins to children, and pointed out the stand that the Committee on Public Health of the Illinois Federation of Women's Clubs had taken and that the Legislative Committee of the Federation had gone on record as being opposed to the present bill. At this juncture Mrs. Carpenter, Chairman of the Legislative Committee of the Illinois Federation of Women's Clubs, said that her committee was against cruelty and unnecessary suffering, but was opposed to the bill. Dr. Andy Hall pointed out that twenty years had been added to the average human life, primarily as a result of animal experimentation and asked what the Antivivisectionists had done in this respect. Dr. Kegel told how animals were necessary for Public Health work and that the abolition of animal experimentation would make a Public Health Department unnecessary because it would be so greatly crippled.

Dr. Carlson in his rebuttal stated that all animals when operated upon were under the influence of an anesthetic. Some of the Anti's present could not understand this statement and asked a number of questions. They asked questions about heating animals and producing disease. They used the term "roasting" and stated they had been informed by a former employee of a university that this had been done. Animals were certainly not roasted, but heated to cause fever to determine its ravaging effects and how these may be combatted in man. They did not distinguish between an operation and an injection, etc. They stated that persons had been refused admittance to Northwestern University laboratories, but produced no evidence. This may have happened on a holiday but not otherwise. Dr. Carlson pointed out that in starvation experiments the animal experiences no marked distress or pain, as judged from such experiments on man, and also that in parathyroid tetany, there is no pain in man, and that there is probably none in the dog, and that due to such experiments, we can now save the lives of human beings afflicted with this disease. Dr. Carlson further pointed out the possibility that at times and at certain places animals are caused to suffer unnecessarily and ill-advisedly, but such did not occur in well conducted laboratories, but that occasionally accidents happen in the best laboratories, such accidents being unavoidable

and lamentable. Since Dr. Held said that animal experimentation might increase the incidence of sadism and since the literature sent out by the Antivivisectionists states that animal experimenters were moral perverts or degenerates, Dr. Carlson pointed out that experimenters had good reputations in their communities, that they held prominent positions (he stated that he had been personally selected by President Hoover to take charge of infant welfare in the war stricken countries of Europe after the war), that there was no proof that sadism was more prevalent in animal experimenters than in the general run of the population, and that animal experimenters constantly contribute to human welfare by humane acts.

The meeting was then adjourned.

The Senatorial Committee visited the University of Illinois Medical School on Saturday morning, April 20th.

TENTATIVE OUTLINE OF EXPENDITURE OF FOUNDATION FUNDS TO EFFECT SUPERIOR MEDICAL SERVICE

Dr. J. V. Fowler of Chicago has skeletonized a possible plan for the distribution of endowments and foundations that might eventually be adjusted to a beneficial co-operation with the aims and desires of the medical profession to dispense the most superior medical service to the general public and to contribute most heartily to the general public welfare.

There has never been any question in the minds of medical men that the so-called high cost of illness does not arise from the actual cost of medical service but rather from the maintenance of a greatly involved and expensive system of the dispensation of medical service. Reduction of the cost of maintenance of this system of dispensation is one of the factors that has created puzzling problems in the economics of the profession.

Careful analysis of the elements of this increased cost resolves itself into the bare and accepted facts of the general increase in living expense. This means the cost of food, of labor and of living supplies in general, from telephone service, engineer and janitor work, hospital and medical supplies, transportation, and increased pay and shorter hours for nurses.

Briefly epitomized, Dr. Fowler's ideas include:

"Make available in a number of hospitals complete diagnostic facilities for all ethical practitioners in that community. Under this arrangement such physicians would be permitted to bring their patients to this diagnostic center and to obtain not only a complete diagnosis, but also assistance in the interpretation of the diagnostic findings, if they did not feel capable of such interpretation themselves. This assistance would be without prejudice to the physician or reflection upon his ability. After the diagnosis and interpretation were completed, the patient would be turned back to the physician to carry out such treatment as was indicated and he thought best to give. Such hospitals would be staffed by men capable of rendering adequate service in various diagnostic work. All types of cases would be received at this hospital, and no one refused treatment because of economic stringency.

"Further, after diagnostic procedures are completed cases needing hospitalization would be charged in accordance with their ability to pay. Those who could pay full fees would be charged full rates. Those unable to pay full rates would be charged what they could pay, while all elements contributing to the service would be subject to reduced charges in like proportions.

"Also, for those unable to meet the regular costs of diagnosis and treatment a fund would be available from which they could obtain money to pay the needed bills. Such cases would be entitled to reduced expenses in all hospital departments, i. e.,—the hospital, the laboratory, the nursing and physician's bill would be reduced in the same proportion without in any way reducing the quality and efficiency of the service rendered. It would be a mutual and co-operative effort on the part of all those handling the case in any way to contribute in the same proportion of their energies and abilities to the treatment and recovery of the patient.

"A qualified social service worker would be necessary to study the cases admitted to the hospital and claiming inability to pay full rates. After her investigation was completed and the information organized it would be referred to a committee or board consisting of a representa-

tive of the hospital administration, the nursing service, the laboratory service and the medical staff. Such a committee or board might consist of the hospital superintendent, superintendent of nurses, superintendent of laboratory work, a representative of the medical staff, and a representative of this fund providing the means for assistance to these patients. Such a board would sit in judgment on the findings of the social service worker, and determine to what extent the contributing groups should reduce their charges in order to meet the financial needs of the patient.

"This plan would require financial assistance from some source until the work became so well organized that it could carry itself. If a philanthropic fund provided the additional necessary diagnostic equipment, it would also probably be necessary for it to help the hospital management carry the financial load of giving the best service at reduced costs, and it might also be necessary to subsidize the fees paid to the staff, the members of which devoted their time to diagnostic and interpretative work. In time, however, such an activity should be so organized as to carry its own financial load. This will require experimentation to determine what are just and equitable charges for the various services rendered, and other working details.

"Added sources of income for such an institution might well be the installation of development of periodic health examinations of patients referred by physicians. In order to be equally fair and just in all cases, no patient should be permitted to avail himself of the institution's facilities unless he had been referred thereto by a physician, or, if he had no physician previously, would place himself in the hands of a competent physician in that community.

"After such a diagnostic and hospital center has been in operation a sufficient length of time to show that it is practical and practicable and is rendering a service deemed desirable for the middle classes, it should be possible to establish many other similar hospitals over the city. If the project and plan proves feasible, it should be capable of extension to all hospitals in the metropolitan area and to similar communities in other parts of the country."

ILLINOIS STATE MEDICAL SOCIETY

SEVENTY-NINTH ANNUAL MEETING,
PEORIA, ILLINOIS,

May 21, 22, 23, 1929

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E. D. Levisohn.....Chicago

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William D. Chapman.....Chicago
Miss Jean McArthur, *Secretary*.....Chicago

SCIENTIFIC SERVICE COMMITTEE

James H. Hutton, *Chairman*.....Chicago
Harold M. Camp, *Secretary*.....Monmouth
John E. Tuite.....Rockford
F. O. Fredrickson.....Chicago

SECTION OFFICERS**SECTION ON MEDICINE**

N. S. Davis, III, *Chairman*.....Chicago
Frank Deneen, *Secretary*.....Bloomington

SECTION ON SURGERY

Earl D. Wise, *Chairman*.....Champaign
Frank L. Brown, *Secretary*.....Chicago

SECTION ON EYE, EAR, NOSE AND THROAT

George F. Suker, *Chairman*.....Chicago
Walter Stevenson, *Secretary*.....Quincy

SECTION ON PUBLIC HEALTH AND HYGIENE

E. W. Mosley, *Chairman*.....Chicago
John J. McShane, *Secretary*.....Springfield

SECTION ON RADIOLOGY

E. G. C. Williams, *Chairman*.....Danville
I. S. Trostler, *Secretary*.....Chicago

SECRETARIES' CONFERENCE

W. J. Benner, *President*.....Anna
W. H. Smith, *Vice-President*.....Benton
I. L. Foulon, *Secretary*.....East St. Louis

COMMITTEE ON ARRANGEMENTS

Rolland Lester Green, *General chairman*.Peoria
C. W. Magaret, *Secretary*.....Peoria
J. H. Bacon.....Peoria
W. A. Malcolm.....Peoria
C. U. Collins.....Peoria
John Vonachen.....Peoria
George Weber.....Peoria
W. B. Eicher.....Peoria
Arthur Sprenger.....Peoria
P. B. Goodwin.....Peoria

W. C. Williams.....Peoria
 George ParkerPeoria
 Joel EastmanPeoria
 S. H. Easton.....Peoria
 E. S. Gillespie.....Peoria
 George MichellPeoria
 E. P. Coleman.....Canton

MEETINGS OF THE HOUSE OF DELEGATES

Tuesday Afternoon, May 21, 1929

3:00 P. M.—Meeting called to order by the President, John E. Tuite, for reports of officers, committees and other business to come before the house.

Thursday Morning, May 23, 1929

8:30 A. M.—Meeting called to order by the President for election of officers, committees, delegates to the American Medical Association meeting, report of resolutions committee and other business to come before the house.

WOMEN'S AUXILIARY

Mrs. G. Henry Mundt, *President*.....Chicago
 Mrs. John R. Neal, *President-elect*..Springfield
 Mrs. Edward H. Ochsner, *First Vice President*Chicago
 Mrs. F. H. Pirnat, *Second Vice President*Chicago
 Mrs. J. O. Cletcher, *Third Vice President*Tuscola
 Mrs. R. K. Packard, *Secretary*.....Chicago
 Mrs. A. E. Dale, *Treasurer*.....Danville

PROGRAM

Wednesday, May 22, 1929

10:00 A. M.—Public Meeting.

Reports will be given from the County Auxiliaries.

1:00 P. M.—Luncheon in honor of the Women's Auxiliary given by the Peoria Medical Society.

Short talks will be given at the luncheon.

President's annual address.

Mrs. G. Henry Mundt, President, Chicago.

Installation of the incoming President, Mrs. John R. Neal, Springfield.

SECRETARIES' CONFERENCES

W. J. Benner, *President*, Anna.

W. H. Smith, *Vice-President*, Benton.

I. L. Foulon, *Secretary*, East St. Louis.

Tuesday Morning, May 21, 1929

10:00 A. M.—1. "The County Society and Medical Organizations," Chas. S. Skaggs, East St. Louis.

10:30 A. M.—2. "The County Medical Society". Andy Hall, Councilor, 9th District, Mt. Vernon.

11:00 A. M.—3. "The Attitude of the Present Day Medical School in the Matter of the Education of the Young Doctor". Louis D. Moorehead, Dean, Loyola University School of Medicine, Chicago.

11:30 A. M.—4. General Discussion of papers and Subjects of Interest to County Medical Societies.

GENERAL SESSIONS

Tuesday Evening, May 21, 1929

Ball Room, Pere Marquette Hotel

7:30 P. M.—Meeting called to order by the President, John E. Tuite. Invocation, C. C. Carpenter, D. D., Pastor, Central Christian Church, Peoria. Address of Welcome, Hon. E. N. Woodruff, Mayor of Peoria. Address of Welcome, A. L. Sprenger, President, Peoria Medical Society. Report of Chairman, Committee on Arrangements, Rolland Lester Green, Peoria. Address, "Periodic Health Examinations," Malcolm L. Harris, President-elect, American Medical Association, Chicago.

This meeting is open to the public.

Wednesday Afternoon, May 22, 1929

2:00 P. M.—Oration in Surgery: "The Mimicry of the Symptoms of Peptic Ulcer." J. Shelton Horsley, Richmond, Virginia.

Wednesday Evening, May 22, 1929

7:30 P. M.—President's Address, "The General Practitioner," John E. Tuite, President Illinois State Medical Society, Rockford.

8:00 P. M.—Oration in Medicine, "The Thyroid Heart," Stewart R. Roberts, Atlanta, Georgia.

Thursday Afternoon, May 23, 1929

1:30 P. M.—Induction of the President-elect, F. O. Fredrickson, Chicago.

1:45 P. M.—Report of the House of Delegates.

THE PRESIDENT'S DINNER

The Annual President's Dinner will be held at the Pere Marquette Hotel on Wednesday Evening, May 22, at 6:15. The immediate past president, G. Henry Mundt of Chicago will pre-

side at this function. An interesting program has been arranged and it is hoped that every physician and every lady in attendance at the meeting will be present. There will be no long talks, and suitable entertainment will be given. Tickets may be procured at the registration desks, or from the chairman of the banquet committee, Dr. C. U. Collins, Peoria.

The President's address, and Oration in Medicine will follow the dinner, in the same room.

LADIES' ENTERTAINMENT

Chairmen of Committees

State Social Committee, Mrs. R. L. Green.
Garden Tea Committee, Mrs. F. G. Morrill.
Dinner Committee, Mrs. Robert A. Hanna.
Bridge Committee, Mrs. John Vonachen.
Registration Committee, Mrs. A. A. Crooks.
Reception Committee, Mrs. B. L. Adelsberger.
Luncheon Committee, Mrs. Joseph Duane.
Transportation Committee, Mrs. Clarence Fisher.

Tuesday, May 21, 1929

Tour of city, starting from Pere Marquette Hotel at 1:30 P. M.

Garden Tea at residence of Mrs. F. G. Morrill.

Dinner Tea at Pere Marquette Hotel at 7:00 P. M.

Wednesday, May 22, 1929

Women's Auxiliary business meeting at Peoria Medical Society Rooms, 341 Jefferson Building at 10:00 A. M.

Luncheon at Jefferson Hotel, 1:00 P. M.

Mrs. Arthur Sprenger, General Chairman.

Following the Luncheon the Women's Auxiliary will have a short program, and also the installation of their incoming President, Mrs. John R. Neal.

It is hoped that many of the ladies will be present at this meeting. Since the organization of the Women's Auxiliary two years ago there has been a greater incentive for the ladies attending the annual meetings of the Illinois State Medical Society and the attendance should be greater this year than at former meetings.

THE STAG

Immediately after the opening meeting on Tuesday evening, May 21, the Peoria Medical Society will be host at a "Stag" smoker and Buffet Lunch in the Ball Room of the Pere Mar-

quette Hotel. The Peoria Society will not announce the nature of the entertainment, but you can be assured that it will be "well worth while."

TO VISITING PHYSICIANS

The Illinois State Medical Society always welcomes visitors at the Annual Meetings. We have assurance that there will be a considerable number of visitors at the 1929 meeting from other states, and we want you to enjoy the meeting. Look over the Commercial and Scientific Exhibits,—Attend the Scientific and General Meetings. Every member of the Peoria Medical Society is a member of the Reception Committee, and will have appropriate badges. If you want any information, ask any member of this big Committee. We hope that you will enjoy this meeting and will meet with us again in the future.

SECTION PROGRAMS

SECTION ON MEDICINE

N. S. Davis, III, *Chairman*.

Frank Deneen, *Secretary*.

Tuesday, May 21, 1929

2:00 P. M.—The A. B. C. of the Electrocardiogram, Emmet Keating, Chicago.

Discussion opened by W. G. Bain, Springfield.

2:30 P. M.—Diagnostic Problems in Tuberculosis, George T. Palmer, Springfield.

2:50 P. M.—Ketogenic Diets in Epilepsy, A. M. P. Saunders, Chicago.

Discussion opened by W. R. Reed, Chicago, and John Favill, Chicago.

3:15 P. M.—Coronary Disease, R. Wesley Scott, Cleveland, Ohio (by invitation).

Discussion opened by J. B. Herrick, Chicago.

4:15 P. M.—Relation of Asthma to Broncho-Pulmonary Infections and Inflammations, S. M. Feinberg, Chicago.

Discussion opened by Cecil Jack, Decatur.

4:45 P. M.—Dermatological Aspects of Early Syphilis, Cleveland White, Chicago.

Discussion opened by W. B. Wakefield, Peoria, and I. H. Neece, Decatur.

Wednesday, May 22, 1929

9:00 A. M.—Sodium Chloride and Its Effects on Blood Pressure, Robert S. Berghoff and Angelo S. Geraci, Chicago.

9:20 A. M.—Hypertension, S. E. Munson, Springfield.

9:40 A. M.—Hypotension, Arthur I. Kendall, Chicago.

10:00 A. M.—Hypertension, Hermon O. Mosenthal, New York City (by invitation).

11:00 A. M.—Discussion of papers on Hypertension and Nephritis, opened by Charles A. Elliott, Chicago.

11:30 A. M.—The Clinical Significance of Intestinal Fermentation, L. D. Snorf, Chicago.

Wednesday Afternoon, May 22, 1929

3:00 P. M.—Joint meeting with Section on Surgery. Symposium on Obstetrics.

1. Heart Disease in Pregnancy, Phil Daly, Chicago.

2. Toxemias in Pregnancy, Fred Falls, Chicago.

3. Surgical Obstetrics, Charles E. Paddock, Chicago.

4. Ectopic Pregnancy, Edward Allen, Chicago.

5. Discussion of Obstetrical Papers.

6. Methyl Alcohol Poisoning (A Clinical and Pathological Study of Eleven Fatal Cases.), Ernest C. Burhans, Peoria.

Thursday, May 23, 1929

9:00 A. M.—Chairman's Address, N. S. Davis III, Chicago.

9:30 A. M.—Relief of Projectile Vomiting in Infants by Radiation of the Upper Chest Region, Orville Barbour, Peoria, and J. W. Connell, Peoria.

Discussion opened by A. J. Carlson, University of Chicago.

9:50 A. M.—Appendicitis in Children Under Fourteen Years of Age, R. E. Cummings, Chicago.

10:10 A. M.—Use of Orange Juice Milk in Infant Feeding, King G. Woodward, Rockford.

Discussion opened by Gerald Cline, Bloomington.

11:00 A. M.—Lead Poisoning; With Analysis of Employees of an Enameling Plant, Warren Pearce, Quincy.

Discussion opened by R. A. Harris, Quincy.

11:30 A. M.—Election of Officers of Section on Medicine, for 1930.

SECTION ON SURGERY

Earl D. Wise, *Chairman*.

Frank L. Brown, *Secretary*.

Tuesday Afternoon, May 21, 1929

1:00 P. M.—The Management of Lesions Peculiar to Diabetics, George L. Apfelbach, Chicago.

Discussion opened by N. J. Carter, Mattoon.

1:30 P. M.—Exophthalmic Goiter, E. P. Sloan, Bloomington.

Discussion opened by E. C. Roos, Decatur.

2:00 P. M.—Necessary Abdominal and Pelvic Operations During Pregnancy, J. P. Greenhill, Chicago.

Discussion opened by O. H. Crist, Danville.

2:30 P. M.—Acute Osteomyelitis of the Spine," Charles L. Patton, Springfield.

Discussion opened by W. Stuart Wood, Decatur.

3:00 P. M.—Some Fundamental Factors in the Pathology of the Gastro-Intestinal Tract," Arthur E. Hertzler, Professor of Surgery, University of Kansas School of Medicine, Halstead, Kansas (by invitation).

4:00 P. M.—Fractures of the Hip, Edward H. Ochsner, Chicago.

Discussion opened by Hugh E. Cooper, Peoria.

4:30 P. M.—Electric Burns and Their Treatment, Hart E. Fisher, Chicago.

Discussion opened by C. F. Newcomb, Champaign.

5:00 P. M.—Exstrophy of the Bladder, with a report of a case, Thomas S. Robertson, Chicago.

Discussion opened by E. P. Sloan, Bloomington.

Wednesday Morning, May 22, 1929

8:00 A. M.—A Closed Aseptic and Quick Method of Gastro-Intestinal Anastomosis, A. V. Partipilo, Chicago.

Discussion opened by C. U. Collins, Peoria.

8:30 A. M.—Rectal Operations—Their Systemic Effect, P. F. James, Peoria.

Discussion opened by Charles J. Drueck, Chicago.

9:00 A. M.—Osteomyelitis—Acute Infections (with illustrations), John R. Harger, Chicago.

Discussion opened by C. George Appelle, Champaign.

9:30 A. M.—Value of Blood Transfusions in Acute Septicemia, Ralph A. Kordenat, Chicago.

Discussion opened by L. T. Gregory, Urbana.

10:00 A. M.—Idiopathic Peritonitis, Dr. Gatewood, Chicago.

Discussion opened by E. P. Coleman, Canton.

10:30 A. M.—Hydronephrosis (with illustrations), Vincent J. O'Connor, Chicago.

Discussion opened by I. H. Neece, Decatur.

11:00 A. M.—Movable Kidney: Its Reality—Its Menace to Health—Its Curability, Bransford Lewis, Professor Genito-Urinary Surgery, St. Louis University School of Medicine, St. Louis, Missouri (by invitation).

Wednesday Afternoon, May 22, 1929

3:00-6:00 P. M.—Joint meeting with Section on Medicine. Symposium on Obstetrics.

1. Heart Disease in Pregnancy, Phil Daly, Chicago.

2. Toxemias in Pregnancy, Fred Falls, Chicago.

3. Surgical Obstetrics, Charles E. Paddock, Chicago.

4. Ectopic Pregnancy, Edward Allen, Chicago.

There will be a general discussion of the Obstetrical Papers.

5. Methyl Alcohol Poisoning—A Clinical and Pathological Study of Eleven Fatal Cases, Ernest C. Burhans, Peoria.

Election of officers for Section on Surgery will be held immediately after the program is completed.

SECTION ON EYE, EAR, NOSE AND THROAT

George F. Suker, *Chairman*.

Walter Stevenson, *Secretary*.

Tuesday Afternoon, May 21, 1929.

Jefferson Hotel

INSTRUCTION PROGRAM

First Conference—1:00-2:30 P. M.

Course 1—Tuning Fork Tests, Practical Applications and Interpretations, John Theobald, Chicago.

Course 2—Pathology of Complications of Cataract Extractions. (Lantern demonstrations). C. F. Yerger, Chicago.

Course 3—Treatment of Nasal Fractures (Recent and Old), Samuel Salinger, Chicago.

Course 4—Facoerisis, Demonstration of Technique, etc., William A. Fisher, Chicago.

Course 5—Pathologic Conditions of Ear, Nose and Throat: Practical Applications, Joseph C. Beck, Chicago.

Second Conference—2:45-4:15 P. M.

Course 6—The New Ophthalmic Patient, Harry S. Gradle, Chicago.

Course 7—Intranasal Surgery, Edwin McGinnis, Chicago.

Course 8—Differential Diagnosis of the Various Forms of Incipient Cataract, Slit Lamp Demonstrations, Robert Von Der Heydt, Chicago.

Course 9—Limitations of Physical Therapy in Otolaryngology, Frank Novak, Chicago.

Course 10—Surgery of the Eye Muscles, Harry W. Woodruff, Joliet.

SCIENTIFIC PROGRAM

Wednesday, May 22, 1929

Jefferson Hotel

1. Modification of the Present Operation for Deflection of the Nasal Septum, Charles F. Burkhardt, Effingham.

Discussion opened by Harold R. Watkins, Bloomington.

2. Pemphigus Vulgaris Pharyngeus, Herbert E. Taylor, Chicago.

Discussion opened by Oscar C. Breitenbach, Waukegan.

3. History and Pathology of the Zonula (illustrated), Ramon Castroviejo, Chicago. (By invitation.)

Discussion opened by Harry S. Gradle, Chicago.

4. Senile Cataract Technique, William A. Fisher, Chicago.

Discussion opened by Carson K. Gabriel, Quincy.

5. Artificial Appliances in Ear, Nose and Throat Practice, Joseph C. Beck, Chicago.

Discussion opened by Louis Ostrom, Rock Island.

6. Observations on the Complications of Cataract Extraction, Charles F. Yerger, Chicago.

Discussion opened by Carroll B. Welton, Peoria.

7. Pathology of Hernias Following Cataract Operations (Illustrated), Oscar B. Nugent, Chicago.

Discussion opened by Robert H. Buck, Chicago.

8. The Evolution of the Management of the Sinus Problem, Thomas E. Carmody, Denver, Colorado. (By invitation.)

9. Intraocular Tension and the Internist, J. H. Roth, Kankakee.

Discussion opened by A. L. Adams, Jacksonville.

10. Remarks on the Clinical Method of Post Graduate Instruction, Thomas D. Allen, Chicago.

Discussion opened by Austin A. Hayden, Chicago.

11. Gradenigo's Syndrome, George H. Woodruff, Joliet.

Discussion opened by Frank H. Alloway, Champaign.

12. The Oculo-Glandular Form of Tularaemia, Derrick T. Vail, Jr., Cincinnati, Ohio. (By invitation.)

13. Obscure Ear Diseases in the First Year of Life. (Relation to intestinal intoxication.) Pathological and Clinical Report from Children's Memorial Hospital, Chicago, M. H. Cottle, Chicago.

Discussion opened by George W. Boot, Chicago.

14. Cancer in Ear, Nose and Throat Practice, George W. Boot, Chicago.

Discussion opened by Joseph C. Beck, Chicago.

15. Prophylaxis and Early Treatment of Laryngeal Tuberculosis, Irving I. Muskat, Chicago.

Discussion opened by R. W. Dunham, Ottawa, and Samuel Salinger, Chicago.

16. Treatment of Chronic Suppurative Maxillary Sinusitis, O. J. Nothenberg, Chicago.

Discussion opened by Grover C. Otrich, Belleville, and Burton Haseltine, Chicago.

17. Clinical Experiences with the Nasal Accessory Sinuses, C. Hopkins Long, Chicago.

Discussion opened by Edwin McGinnis, Chicago.

18. Surgical Diathermy of Tumors About the Head, Thomas C. Galloway, Evanston.

Discussion opened by Frank F. Novak, Jr., Chicago.

19. The Relation of Suppurative Sinusitis to Suppurative Otitis Media, Edward N. Schoolman, Chicago.

Discussion opened by Joseph Duane, Peoria.

20. The Determination of the Pathogenic Tonsil (Report of a New Biologic Method), M. Reese Guttman, Chicago.

Discussion opened by I. Pilot, Chicago.

The Annual Banquet of the Section on Eye, Ear, Nose and Throat will be held in the Gold Room of the Jefferson Hotel, Tuesday Evening, May 21, 1929. Reservations should be made through Dr. Wright Williams, Peoria, Illinois.

SECTION OF PUBLIC HEALTH AND HYGIENE

E. W. Mosley, *Chairman*.

John J. McShane, *Secretary*.

Tuesday Afternoon, May 21, 1929

2:00 P. M.—Co-operation of the Health Department with the Practicing Physician, Arnold H. Kegel, Health Commissioner, Chicago.

Discussion opened by James H. Hutton, Chicago.

2:30 P. M.—Place of the Practicing Physician in School Hygiene, Ethel R. Harrington, Springfield.

3:00 P. M.—Prevention and Treatment of Measles, Archibald Hoyne, Chicago.

Discussion opened by Maurice L. Blatt, Chicago.

3:30 P. M.—Undulant Fever, Lloyd Arnold, Chicago.

Discussion opened by Thomas G. Hull, Springfield.

4:00 P. M.—Control of Mosquitoes in the Prevention of Malaria, Anselmo Dappert, Springfield.

Discussion opened by J. Lyle Clarke, Riverside.

4:30 P. M.—The Laboratory in the Field of Preventive Medicine, D. J. Davis, Chicago.

Discussion opened by Walter Bain, Springfield.

Wednesday Morning, May 22, 1929

9:00 A. M.—Certain Factors Influencing the Mental Health of College Students, J. Howard Beard, Urbana.

9:30 A. M.—Sanitary Conditions of the Illinois River, F. W. Mohlman, Chicago.

10:00 A. M.—Administrative Control of Communicable Diseases, Don Griswold, Lansing, Michigan. (By invitation.)

Discussion opened by A. A. Crooks, Peoria.

10:30 A. M.—Scarlet Fever, Gladys Dick, Chicago.

Discussion opened by W. C. Van Wormer, Homewood.

11:00 A. M.—Food Infections, Gottfried Koehler, Chicago.

Discussion opened by N. O. Gunderson, Rockford.

11:30 A. M.—Control of Diphtheria, Arlington Ailes, La Salle.

Discussion opened by V. M. Brian, St. Francisville.

12:00 A. M.—Election of officers of the Section on Public Health and Hygiene for 1930.

SECTION ON RADIOLOGY

E. G. C. Williams, *Chairman*.

I. S. Trostler, *Secretary*.

Wednesday Morning, May 22, 1929

9:00 A. M.—Call to order, appointment of committees and business session.

9:30 A. M.—Radium Emanation (Radon) Technique in Cancer and Other Conditions, Harry B. Magee, Peoria.

9:45 A. M.—Radium and Radon in Malignant and Benign Diseases of the Skin and Mucous Membranes of the Mouth, Frank E. Simpson and R. E. Flesher, Chicago.

Discussion opened by Thomas D. Cantrell, Bloomington.

10:00 A. M.—The Pre-Radium Treatment of Cervical Cancer, Harold Swanberg, Quincy.

10:15 A. M.—Histo-Pathological Examinations as a Guide to Radiation Therapy, Roswell T. Pettit, Ottawa.

Discussion opened by Henry Schmitz, Chicago.

10:30 A. M.—Radio-Therapy in Dermatology, Rollin H. Stevens, Detroit, Michigan (By invitation.)

11:30 A. M.—Backache, Roentgenologically Considered, Maximilian J. Hubeny, Chicago.

11:45 A. M.—A Clinical Report of 19 Cases of Fractured Transverse Processes With Symptoms Referable to Kidneys, I. S. Trostler, Chicago.

Discussion opened by B. C. Cushway, Chicago.

Thursday, May 23, 1929

8:30 A. M.—Business, reports of committees and election of officers.

9:00 A. M.—Cancer of the Duodenum, Report of a Case, James S. Archibald, Decatur.

9:15 A. M.—X-Ray Observations on Congenital Radio-Ulnar Synostosis of the Elbow, Edwin S. Blaine, Chicago.

9:30 A. M.—Roentgenotherapy of Non-Malignant Pathology, Henry A. Chapin, Jacksonville.

Discussion opened by Fred S. O'Hara, Springfield.

9:45 A. M.—Hirtz Compass Localization of Foreign Bodies in the Head, H. C. Kariher, Champaign.

10:00 A. M.—A New Serum Test for Diagnosis of Cancer, Benjamin F. Gruskin, Chicago. (By invitation.)

10:15 A. M.—The Woman's Bill of Rights, E. G. C. Williams, Danville.

Discussion opened by W. T. Bronson, Chicago.

10:30 A. M.—Broncho-Sinusitis Disease and Incipient Pulmonary Tuberculosis, The Differential Diagnosis, W. Walter Wasson, Denver, Colorado. (By invitation.)

11:30 A. M.—The Nasal Accessory Sinuses, Carroll E. Cook, Chicago.

Discussion opened by M. J. Hubeny, Chicago.

11:45 A. M.—Introduction of new officers to the Section.

RULES GOVERNING THE PRESENTATION OF PAPERS

All papers read by members shall be limited to twenty minutes and remarks in discussion to five minutes, floor privilege being allowed only once for the discussion of any one subject.

All papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the section when read and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the ILLINOIS MEDICAL JOURNAL.

A paper not heard in its scheduled turn shall be held subject to the call of the Chairman of the Section at the end of that regular session if time permits, or as an alternative at the end of the program.

All subjects shall be confined strictly to the subject in hand.

No paper shall appear in the printed transactions of the meeting unless read in full or in abstract.

(From the by-laws of the Illinois State Medical Society.)

SCIENTIFIC EXHIBITS

There will be a large number of Scientific Exhibits shown in the Auditorium where the Commercial exhibits, and general headquarters

are maintained. Definite data concerning the Scientific Exhibits has not yet been received, but will be announced in detail in the Official Printed Program distributed at the meeting.

American Medical Association,—a large and interesting exhibit from the Bureau of Investigation, The Council on Pharmacy and Chemistry, The Council on Medical Education and Hospitals, and from other Departments showing what the American Medical Association is doing for the physicians.

The Illinois State Department of Health will have a large and unusually interesting exhibit. A laboratory booth showing a field unit which can be transported on short notice to the scene of an epidemic outbreak, a map showing location and functions of state diagnostic laboratories, samples of the various biologics distributed by the state, etc.

Vital Statistics Booths,—showing infant mortality and birth rates by counties, showing also the necessity for proper registration of all births in Illinois, and special graphs showing diphtheria death rate by counties.

A Milk Laboratory,—display to consist of the mobile milk laboratory in action. Various mechanical models relating to private water supplies, smallpox vaccination, ventilation, and sanitary conditions in the home will be shown.

Loyola University School of Medicine and Mercy Hospital will have an interesting exhibit under the supervision of Henry Schmitz.

1. Importance of urologic examinations in gynecological diseases.
2. The diagnosis and treatment of sterility due to blocked tubes.
3. The prognostic value of the histological malignancy index in cervical carcinomas.
4. The early diagnosis and treatment of cervical carcinomas.

Exhibits from other medical schools have been promised for the meeting.

The South Carolina Food Research Commission will have an interesting exhibit on Nutritional work through its laboratory in conjunction with the State Board of Health.

Dr. E. P. Sloan, Bloomington, will have an exhibit on goiter, consisting of specimens of goiter, photographs, charts, etc.

Dr. Harold Swanberg, Quincy, will have an exhibit on "Malignancy of the Uterine Cervix and Its Treatment With Heavily Filtered, Mul-

tle Centers of Radium—Use of a New Applicator."

Dr. Vilray P. Blair of St. Louis will have an exhibit on Hair Lip and Cleft Palate, consisting of models, charts, and photographs on the subject.

EXHIBITORS AT THE 79th ANNUAL MEETING

- Abbott Laboratories, North Chicago, Illinois.
 Acme-International X-Ray Company, 711 West Lake Street, Chicago, Illinois.
 A. S. Aloe Company, 1819 Olive Street, St. Louis, Mo.
 George W. Brady Company, 809-811 South Western Avenue, Chicago, Illinois.
 Borchardt's Malt Extract Company, 217 North Lincoln Street, Chicago, Illinois.
 The Cutter Laboratory, Berkeley, California.
 Ciba Company, Inc., Cedar and Washington Streets, New York City.
 Cameron's Surgical Specialty Company, 666 West Division Street, Chicago, Illinois.
 The Cilkoid Company, Marshalltown, Iowa.
 DeVilbiss Company, Toledo, Ohio.
 De Puy Manufacturing Company, Warsaw, Indiana.
 Deshell Laboratories, Inc., 536 Lake Shore Drive, Chicago, Illinois.
 H. G. Fischer and Company, 2323-2337 Wabansia Avenue, Chicago.
 G. F. Harvey Company, 205 North Adams Street, Peoria, Illinois.
 Hanovia Chemical and Manufacturing Company, Chestnut and N. J. R. R. Avenue, Newark, New Jersey.
 Hettinger Brothers Company, 135 North 10th Street, St. Louis, Mo.
 Horlick's Malted Milk Corporation, Racine, Wisconsin.
 Huston Brothers Company, 185 North Wabash Avenue, Chicago.
 The Kellogg Company, Battle Creek, Michigan.
 The Kelley-Koett Company, Covington, Kentucky.
 The Laboratory Products Company, Cleveland, Ohio.
 Mead-Johnson Company, Evansville, Indiana.
 McMaster and De Kroyft, Peoria, Illinois.
 C. V. Mosby Company, St. Louis, Mo.
 V. Mueller and Company, 408 South Honore Street, Chicago, Illinois.
 Mellins Food Company, 177 State Street, Boston, Mass.
 Medical Protective Company, 35 East Wacker Drive, Chicago, Illinois.
 Moores-Ross, Inc., Columbus, Ohio.
 Orchard Hill Camp, St. Charles, Illinois.
 Chas. H. Phillips Chemical Company, 117 Hudson Street, New York City.

Radium Service Corporation, 25 East Washington Street, Chicago.

Sharp and Smith, 65 East Lake Street, Chicago, Illinois.

Standard Pharmacal Company, 847-855 West Jackson Blvd., Chicago.

Sanborn Company, Cambridge, Mass.

W. B. Saunders Company, West Washington Square, Philadelphia, Pa.

Sutliff and Case Company, Peoria, Illinois.

Swan-Myers Company, Indianapolis, Indiana.

Victor X-Ray Corporation, 2012 Jackson Blvd., Chicago, Illinois.

G. E. Wallace, Monmouth, Illinois.

White-Haines Optical Company, Columbus, Ohio.

Zimmer Manufacturing Company, Warsaw, Indiana.

NOTES ON EXHIBITS

The A. S. Aloe Company will endeavor to show the very latest in surgical and physio-therapy equipment. New tonsillectomy outfits and hydraulic chairs will be shown. This company has a complete line of surgical and electrical equipment as well as complete lines of office furniture, equipment and accessories.

The Abbott Laboratories will exhibit their specialties at the meeting. This company is one of the largest producers of Ephedrine Hydrochloride and Ephedrine Sulphate in this country and will show a complete line of these preparations in powders, tablets, solutions, jellies, inhalants and elixirs. The chemists and research workers of the Abbott Laboratories have produced many products which will be on display. Among these are Butyn, Butesin and Butesin Picrate, Neonol, Methaphen Amidoxyl Benzoate, Calsoma, Calcilact, Calcium-O-Iodoxy Benzoate, Cinchopyrine, Bismarsen and many others, including the D. R. L. line. All in attendance at the meeting will be well repaid for their visit to the Abbott Booth.

Cameron's Surgical Specialty Company will display their complete line at Booth No. 74. Too few physicians realize the vast improvement in practice made possibly by adequate light. One of the greatest difficulties in diagnosis and surgery is light deficiency. The physician and surgeon can never get enough. Perhaps the best evidence of this is the great number of operating lamp fixtures, many of which are clumsy and hot, in the hospitals and offices of today. Cameron's Boilable lamps and instruments efficiently reveal the field of diagnosis or operation in all of its detail and in its actual color and condition by giving you clean, cool, concentrated white light at your finger tips in all of your work. That is why you will be interested in having a complete demonstration of Cameron's Electro-diagnostic and Operating Equipment on display at their booth.

The Cutter Laboratory of Berkeley, California, will exhibit a display of Test Sets and Treatment Sets for the diagnosis and treatment of seasonal hay

fever, Special High Count Pertussis Vaccine for the treatment of whooping cough and for prophylactic use in exposed children. Toxivi, an extract of the poison ivy plant, administered intramuscularly for the treatment and prevention of rhus dermatitis (poison ivy). Mr. D. H. McMaster of their Chicago branch will be in charge of the exhibit and will have an assortment of literature covering different biological products, as well as a large supply of self hardening scarifiers, a handy instrument for smallpox vaccinations and pollen testing. The latter will be distributed free of charge to any physicians desiring the same.

The Devilbiss Company of Toledo, Ohio, will display Devilbiss Nose and Throat Sprays, Nebulizers, Steam Vaporizers, Physicians' and Dental Heater Sets, both in nickel plate and chromium plate. These will be exhibited in Booth Number 5 and all physicians will be given the opportunity to examine these accessories.

DePuy has designed and manufactured splints and fracture appliances for thirty-four years. This time has been spent to aid the profession and relieve humanity by building modern equipment. DePuy aluminum splints meet the approval of radiographers and surgeons over the entire world. You are cordially invited to visit the DePuy Booth, Number 25, and see the new Abduction Leg Splint and Forearm Extension Splint used in compound fractures of the radius and ulna. Something different. The display will be in charge of Mr. W. D. Bates, the Illinois representatives of the company.

The Deshell Laboratories will exhibit their well known product, "PETROLAGAR." Many gastroenterologists are using Petrolagar as an enema, either as a useful vehicle for the medication of the lower bowel or diluted with water and used as a non-irritating cleanser. Samples will be available for physicians or a generous supply will be mailed to your hospital, charges prepaid. Representatives of the company will be present to tell more of this well known product and the different varieties of Petrolagar that are now available.

H. G. Fischer and Company, Inc., will exhibit some entirely new developments in the field of physical therapy. These pieces of apparatus as well as certain new accessories are the result of many years of close adherence to the idea of producing only such material for the physicians as has been entirely approved and found usable in every sense of the word. Chief among these exhibits will be a new, fully efficient but low priced Twin Carbon Arc Lamp. They will also show two splendid new Diathermy Machines, one in cabinet form and one portable. Their new 1929 Low Voltage and Wave Current Generator is of marvelous simplicity and yet making available all of the fifteen usable voltage currents. You are respectfully urged to visit this booth and consult with the Fischer representatives.

In Booth Number 24 the Hanovia Chemical and Manufacturing Company of Newark, New Jersey,

will exhibit the Alpine Sun and Kromayer Quartz Lamps which are used by more than 150,000 professional men. This wide acceptance by the medical profession stamps Hanovia equipment as an important influence in the science of light therapy and in the manufacture of apparatus for that purpose. They were the original Ultra-violet Lamps. The Sollux Radiant Heat Lamps will also be exhibited, which have unique adaptations to them for producing heat for therapeutic purposes. A cordial welcome is extended to the members attending and it is hoped that all will take the opportunity to visit this display.

Hettinger Brothers of St. Louis will occupy Booth Number 69. This well known company having furnished dental and surgical supplies for many years will exhibit an assortment of various surgical instruments and Carbon Arc Lamps. It will be to the advantage of everyone attending this meeting to inspect the many articles in the display.

Doctors who are interested in a coffee which may be used in normal as well as in special diets are invited to visit the Kellogg Company booth in the Technical Exhibits in connection with this meeting. This company will exhibit and demonstrate Kaffee Hag as well as other Kellogg products. Kaffee Hag Coffee is real coffee from which about 97 per cent. of the caffeine has been removed. Visitors at the booth will be served with this delicious caffeine free and All-Bran Muffins. Pamphlets containing diet suggestions and other literature dealing with the relation of food and health will be distributed.

McMaster and DeKroyft, the well known Peoria Master Pharmacists, will exhibit a large line of Pharmaceuticals, Instruments and Office Equipment which will be of interest to all in attendance at this meeting. This company, which dates back to 1860, is always anxious to fill the wants of the medical profession to which they have catered for so many years.

In Booth Number 8 the Medical Protective Company will be represented by Mr. M. L. Allen of the Peoria office. Consider him at your service, whether to answer any questions on professional protection or render any other service which will help to make this meeting a memorable one.

"SIMILAC," a complete modification of cow's milk, is exhibited in space Number 4 by the Moores and Ross Dietetic Laboratories of Columbus, Ohio. This product is something new in the way of a modified milk for both supplemental and complementary feedings and visitors are invited to ask for information as to how SIMILAC approximates breast milk.

The C. V. Mosby Company will exhibit its complete line of medical and surgical volumes. Included in the display will be the famous New Books in Medicine. Among the new volumes that will be displayed are Steindler "Diseases and Deformities of the Spine and Thorax," Minor "Clinical Proctology," Leriche "Physiology of the Bone"

and Moore "The Tonsils and Adenoids and Their Diseases."

The name "PHILLIPS" identifies the original milk of magnesia and it should be remembered because it symbolizes unvarying excellence and uniformity in quality. The merit of "PHILLIPS" Milk of Magnesia as an ideal laxative ant-acid is well established. For more than a half century it has had the endorsement of the medical profession. Phillips Milk of Magnesia, Phillips Dental Magnesia, a superior tooth paste based on Phillips Milk of Magnesia, and Phillips Phospho-muriate of Quinine Compound will be on display at the exhibit. An invitation is extended to all present at this meeting to call and inspect these products.

Swan-Myers Ephedrine products and Swan-Myers Pollen Extracts will be featured at Booth Number 9. The background will consist of a map of China showing the source of Ephedra. A bale of the crude drug will be shown. Physicians will have an opportunity to try Swan-Myers Ephedrine Inhalant Number 66. Samples of this popular product will also be available for distribution. A motion picture, "The Story of Hay Fever Pollens," illustrating the research and factory processes as well as the administration of pollen extracts will be shown daily at the booth.

Simplified METABOLISM equipment which give reliable data for diagnosis. Another feature—manufacturer to user—result, lowest priced equipment in the market. This is a good time to see the new features that the Sanborn Grafic has and to see it in actual operation too. Besides Metabolism, stop and learn about the new and approved Sanborn ELECTROCARDIOGRAF portable and transportable models, the least expensive and the best. Owners—your experiences are welcomed. Right this way—new friends and old—to say "HELLO" at Booth Number Thirty-three.

In a paper read at a meeting of the Council on Medical Education in Chicago, Dr. Ray Lyman Wilbur, Secretary of the Interior said, "If a physician should stop reading medical literature for three years he would not be able to understand articles in the current magazines."

In keeping with this thought W. B. Saunders Company, Medical book publishers of Philadelphia and London are constantly issuing new books on virtually every subject of interest to those practicing medicine. Recent publications which are attracting unusual attention at this Company's exhibit are: Blumer's "Bedside Diagnosis," Babcock's "Surgery," Bethea's "Clinical Medicine," McLester's "Diet and Nutrition," Cecil's "Medicine," Graves "Gynecology," Stevens' "Therapeutics," Ewing's "Neoplastic Diseases," Garrison's "History of Medicine," the publications from the Mayo Clinic and Mayo Foundation, Cabot's "Facts on the Heart" and Wechsler's "Neurology."

The exhibits of the Victor X-Ray Corporation will consist mostly of Physical Therapy Apparatus.

This will include their Vario-Frequency Diathermy apparatus, Wantz Multiple Wave-Generator, Galvanic Controller, their complete line of Air and Water Cooled Ultra-Violet Quartz Lamps and a new device for radiant heat therapy, the Victor Thermospectral Lamp, with interchangeable infrared and incandescent units. It is anticipated that the daily demonstration of the Victor Electrocardiograph will be an outstanding feature as it has at other meetings. Trained representatives will cheerfully assist you in solving your technical problems involving their Physical-Therapy or X-Ray apparatus.

Acme-International X-Ray Company will exhibit their well known Precision "Six-Sixty Plus" Coronaless X-Ray Generator with remote 60 point Auto Transformer Control and Micro-Timer, Horizontal Motor Driven Stereograph, Model 5 Horizontal Radio-Graphic-Fluoroscopic Bucky Table, Model IV Diathermy Machine, Portable Diathermy Machine and various Models of Ultra-Violet Generators. A complete line of X-Ray and Physical Therapy Accessories and supplies will also be shown and will include Bullitt's Mastoid Apparatus, Ghrist Head Rest, Lead Rubber Aprons, Gloves, etc. Acme Bariumeal, a new opaque medium with extraordinary suspension qualities, deserves special mention and should receive the consideration of all X-Ray users. The exhibit will be in charge of Mr. A. W. Parkin, Chicago City Sales Manager, assisted by a staff of technically trained men who will gladly discuss the daily problems confronting the users of X-Ray and Physical Therapy apparatus.

The Booth of the White-Haines Optical Company features the new Orthogon ophthalmic lenses. These lenses, the latest triumph of Optical Science, permit the wearer to see the image just as sharply through the edges as through the center. In this way they eliminate the injurious strain caused by blurred marginal vision. The White-Haines Optical Company also features the Soft-Lite Glare-Free lenses, Clover Xylonite Frames, the Clingswell Rimless, and the Crown White Gold Frame. In addition to these items Blue Ribbon Prescription Service is featured. This White-Haines service has a sturdy reputation throughout Illinois. Mr. Joe Kiln, manager of the White-Haines Springfield House and Mr. Donald Hunter, their Illinois representative are in charge of this interesting Booth.

No argument is needed to emphasize the advantage to the physician of a thorough knowledge of any product that he deems worthy of frequent or only occasional use in the work of his profession. This is the thought that prompts the Mellins Food Company to have an exhibit and the purpose is to give physicians an opportunity to acquire full and complete information relative to the source, nature and amount of food elements present in Mellin's Food and to discuss the many conditions where Mellin's Food may be used to the advantage of the patient and satisfaction of the medical attendant.

The V. Mueller and Company exhibit will include an unusually complete display of surgical instruments for the general surgeon as well as the eye, ear, nose and throat specialist, urologist the obstetrician and the gynecologist. Of particular interest among the special equipment items will be the "AUDIOMETER," the latest type Beck-Mueller Ether Vapor and Suction Machine, the new model Operay Multibeam Surgical Light, a line of eye magnets and also a line of bone surgery engines and accessories.

Sutliff and Case Company, Inc., of Peoria, a firm whose service to the profession dates back from 1883 will occupy Booth Number 67 with a well chosen display, featuring from among their own specialties with literature and professional samples, THIOCYAN-ELIX, a preparation for the treatment of arterial hypertension. SOLU-CAPS TIN OXIDE COMPOUND internal treatment for furunculosis. KOLAGOG marketed since 1907 as a true chologogue. SOLU-CAPS CINCHOPHEN HYDRIODIDE COMPOUND, a Cinchophen-Iodine Compound containing 16% iodine, analgesic and antiarthritic. A representative presentation of Becton, Dickinson Company and Bauer and Black goods will be shown. Members and visitors are cordially invited to call and inspect the laboratories only a few blocks away.

Zimmer Fracture Equipment, including Aluminum X-Ray Splints, Fracture Beds, Extension and Suspension Apparatus, etc., will be exhibited in Booth Number 1 at the meeting. Dr. Lytle, who represents Zimmer Company in Illinois, will be in charge, and is anxious to greet his many friends among the physicians. Dr. Lytle will consider it a privilege to point out the many interesting features of the Zimmer line. We suggest that you especially ask to see the recent additions which are being enthusiastically received.

Sharp and Smith, the old established Chicago House who supply the physicians, surgeons and hospitals with no small part of their surgical supplies will exhibit in Booths Number 91, 93, 95 and 97. The list of items that can be found on display will be a complete line of surgical instruments, instruments for bone surgery, our "SANDS" giant Cautey, both our Orthochromatic and Binocular Headlights, our B-R-X knives, Pitkin's Spinalthetia Outfit including Pitkin's Tiltometer and many other items too numerous to mention.

The Orchard Hill Camp, situated on the beautiful Fox River just north of the St. Charles Country Club, is an exclusive camp for the younger children. The eight weeks' season opens June 29th. It is interesting to note that practically half the children in camp last year were the sons and daughters of physicians who evidently appreciate the best for their own children. The camp is under the personal direction of Dr. R. J. Lambert and Dr. Edith B. Lowry. No physician who is interested in the welfare of children should fail to visit this exhibit in Booth Number 10.

Huston Brothers, the old reliable firm which has sold surgical instruments, supplies and accessories to the medical profession in Illinois for more than forty years, will be among the exhibitors again this year, with a complete and highly interesting exhibit and they will introduce many instruments of the latest patterns. Huston Brothers Company has recently moved to the new Medical and Dental Arts Building, 185 North Wabash Avenue, Chicago, where they hope to meet their old friends and many others interested in first class supplies and service.

The value of Horlick's products in the dietetic care of the sick and convalescent will be featured at the Horlick's Malted Milk exhibit. Horlick's Maltose and Dextrin Milk Modifier will also be one of the main topics. Samples of Horlick's, the original malted milk, natural and chocolate flavor and of Horlick's Malted Milk Tablets will be provided for Convention visitors at Booth Number 10.

The Borchardt Malt Extract Company of Chicago will exhibit at the meeting. Mr. W. G. Wallace will be in charge of the exhibit in space Number 3 in the center aisle. Mr. F. P. Boynton will assist in demonstrating and describing the manufacture of Borchardt Malt Products. Malt Sugar, Malt Soup Extract and Malt with Spleen Marrow will be prominently displayed and samples will be available. Call at the Borchardt Booth and get your sample of Malt Sugar and a Borchardt pencil.

The Cilkloid Company of Marshalltown, Iowa, will be among the exhibitors again this year with their line of products which are of interest to all practitioners. Perforated and Impervious forms of the Cilkloid dressing will be shown and the new M. D. Special package containing both forms will be featured. Mr. V. A. McGrew, President of the Cilkloid Company will be in charge of the exhibit and will be pleased to demonstrate this valuable accessory to all in attendance at the meeting.

The Kelley-Koett Company of Covington, Kentucky, will occupy Booths numbers 55 and 56. Many new types of X-Ray and Physical Therapy equipment will be on display. The most outstanding product on exhibition is the new 100-100 X-Ray Apparatus, the first X-Ray Generating Apparatus to offer three different and distinct types of installations. Practically any individual laboratory peculiarity or condition is easily mastered when one of the three possible 100-100 models is installed. The apparatus is an ideal X-Ray Generator for the beginner or the Roentgenologist who wishes to perform Fast Radiography, Fluoroscopy and Superficial treatment. This new X-Ray Generator was first introduced on April 1, 1929 and it will make a visit to Booths 55 and 56 well worth while.

Ciba Company, Inc., New York City, will exhibit their well known pharmaceutical specialties at the meeting. The leading preparations are DIGIFOLINE, "CIBA," "DIAL," "CIBA," "CIBALGINE," "CIBA," "CORAMINE," "CIBA," LIPOIODINE, "CIBA," SISTOMENSIN, "CIBA," AGOMENSIN, "CIBA,"

ATOQUINOL, "CIBA" and COAGULEN-CIBA. Their high reputation is based on the painstaking research work done in the Ciba Pharmacological Laboratories.

Mead Johnson and Company will exhibit a complete line of infant diet materials, including Mead's Dextrin-Maltose, Mead's Cod Liver Oil, Mead's Recolac and its full line of Powdered Milk Products. All of Mead's services to physicians will be on exhibit and representatives will appreciate the privilege of going into these with visiting physicians and arranging to have such services sent to them without charge.

ILLINOIS MEDICAL LABORATORY ASSOCIATION

The annual meeting of the Illinois Medical Association Laboratory Association will be held in conjunction with the meeting of the Illinois State Medical Society in Peoria, on Tuesday, May 21, 1929.

PROGRAM

Morning Session—10 A. M.

Laboratory of the Methodist Hospital

1. Reports of Officers of Committees.
2. The Status of Clinical Laboratories in Illinois from the Standpoint of Standardization and Approval.
3. Address of the President—"Why a State Laboratory Association?" Dr. S. M. Feinberg, Chicago.
5. Laboratory Demonstrations.

Luncheon—12:00 Noon. (Luncheon place to be announced.)

Election of officers for ensuing year.

Afternoon Session—2:00 P. M.

The afternoon session will be a meeting with the Section on Public Health and Hygiene of the Illinois State Medical Society.

Officers of the Society.

C. R. Smith, *President*.....Decatur
Thomas G. Hull, *Secretary*.....Springfield

LEGISLATIVE PROGRESS AT SPRINGFIELD

Probably the most interesting phase of our legislative work this year was the hearing on the anti-vivisection bill before the committee on public health in the Senate, in the city council chambers in Chicago, April 19. Reported elsewhere in this issue.

The Legislative Committee appreciates the

very able help it has received from the physicians throughout the state in the defeat of two pernicious drugless healers bills recently. An appeal was sent to 782 physicians living in the immediate neighborhood of each member of the Judiciary Committee of the House, asking their aid in defeating the Naprapathic bill, known as House Bill No. 492. This bill was introduced on March 26th and the drugless healers were very much in evidence in the Legislative halls carrying on an active campaign in favor of the measure. They asked for an early hearing before the Judiciary Committee and on April 17th a large group of them appeared before the committee. They were represented by an attorney who very ably addressed the Committee in their behalf. A number of Naprapaths spoke in favor of the bill and a member of your Legislative Committee appeared in opposition. When the roll was called the bill was killed by a vote of 20 to 0, probably the most outstanding defeat a drugless healers' bill has ever received before the Illinois State Legislature. This is proof conclusively, that the majority of the 782 physicians registered their protest with the members of the Judiciary Committee residing in their districts.

On the following day a Chiropractic measure, House Bill No. 343, asking for a separate Board of Examiners was considered by the Efficiency and Economy Committee and this group was also represented by a Chicago attorney who had made a very careful search of many legal opinions which he believed would conclusively demonstrate to the Committee that a terrible injustice was being done the Chiropractors in the State of Illinois. The Chairman of your Committee had the pleasure of showing a number of fallacies in his arguments. The Committee records show that the bill was killed by a vote of 10 to 1. This again demonstrates that if the members of the Illinois State Medical Society *will register their protest when asked to do so by the Legislative Committee on any pernicious measure the Representatives from their Districts will almost certainly oppose the passage.*

This method, adopted by the Council of the Illinois Medical Society a number of years ago, proves rather definitely that more good can be accomplished and less expense incurred, by the physicians confining their work to their own Senatorial Districts, avoiding the necessity of

sending large lobbying groups to Springfield, as was done in former years.

A pernicious optometry bill has recently showed up in the Legislature which, if passed, would enable mail order spectacle vendors to prey upon the people with cheap eye glasses. Your Legislative Committee in cooperation with the Chicago Ophthalmological Society, believes that we will have no difficulty in killing the bill in the Committee without appealing for aid to other members of the Society.

On the Calendar in the Senate appears a measure which would penalize a physician with a fine and jail imprisonment if he neglected to report the treatment of a gun shot wound to the police. The Chairman of your Committee was informed that the reason for the bill was an attempt to curtail chicken stealing in the southern part of the state and so the good old family doctor was going to be held responsible, remotely at least, for chicken stealing. The bill does not make it unlawful for any other person having knowledge of the shooting not to report it. The person who did the shooting, the one who is shot, and the spectators of the shooting, are not required by the proposed law to report the melee but the physician who treated the man is to be held criminally responsible if he neglects to report the matter to the police. The suggestion was given that an amendment should be put on the bill making every such person responsible instead of the physician alone.

The bill of course will be defeated but it merely demonstrates the class of legislation that without opposition would creep into the statutes, making added hardships for the medical profession and affording very little additional protection for the public. As above indicated, this bill had no difficulty in being reported out of the Judiciary Committee, composed of very able attorneys, with the recommendation "Do pass". Its defeat will not require the active help of physicians throughout the state.

Other bills of less importance are pending, including the Sanatology Bill in the House of Representatives. It would rather appear at this writing that no legislation inimical to the public health or to the medical profession will be passed at this session of the Legislature.

JOHN R. NEAL
Chairman Legislative Committee

DECLINE OF INFANT AND MATERNAL DEATH RATE BEFORE AND AFTER THE PASSAGE OF THE SHEPPARD-TOWNER ACT.

Dr. Wm. C. Woodward, director, Bureau of Legal Medicine and Legislation, has compiled the following data:

The figures¹ below cover the birth and death registration area in the United States.

	Sheppard-Towner Act Passed		
	Nov. 23, 1921		
	1915	1921	1927
Death Rate of Infants			
Less Than One Year Old ²	100	76	64.3
Death Rate of Mothers			
From All Causes Incident to Child-Birth ³	6.1	6.8	6.5
Death Rate of Mothers			
From Child-bed Fever ³	2.6	2.7	2.5

1. All figures are from official sources except the death rate of mothers from child-bed fever in 1915, which is an estimate by Robert Morse Woodbury, formerly Director of Statistical Research, Children's Bureau. Woodbury estimates the corresponding rate in 1900, as 4.3, in 1905, as 3.8, and in 1910, as 3.1, thus showing the trend of mortality from child-bed fever mortality before the Sheppard-Towner Act was passed. (Robert Morse Woodbury, *Infant Mortality and Its Causes*, Baltimore, 1926, page 191).

2. The death rate of infants shows the number of infants who die in the first year of life during any year, per thousand children born alive during the same period.

3. The death rate of mothers shows the number of women dying from causes incident to child-birth during any year, per thousand giving birth to living children during the same period.

GOLF CONTEST AT THE FORTHCOMING MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY

There will be a golf contest for the visiting physicians on the Michell Farm links, during the coming meeting of the Illinois State Medical Society at Peoria.

There will be a driving contest. The one driving nearest to the cup will receive the first prize, which will be a driver and a brassie. The second prize will be a box of golf balls. Third prize one-half dozen golf balls. Fourth prize four golf balls and the fifth prize two golf balls.

The second contest will be a pitching contest, with number five mashie. One getting nearest to the cup will receive the first prize, which will be a set of six stainless steel irons. The second, third, fourth and fifth prizes will be the same as in the other contest. If there are any ties, this will be settled by drawing lots. Contests will be open to all members of the Illinois Medical Society outside of Peoria, on all days during the meeting. There will be cars at the Pere Marquette Hotel to transport doctors to the farm.

Correspondence

WE SHOULD BE ABLE TO DIRECT OUR OWN ETHICAL AFFAIRS.

To the Editor: The pot is boiling and as usual there are many cooks trying to mix the broth—much muddling of issues and misinformation.

The following will, I think, help to make the issue clear. Ethics vs. Advertising, Society law vs. Law Breaker—Is Doctor Schmidt bigger than organized medicine? Are we to stay with the latter or "sympathise" with the man who definitely breaks its law. If that or any other law or rule needs abrogating or change, at least it is our business to amend from inside our own organization. Bundeson evidently is more interested in the glad hand of certain lay powers than he is in building up the power and greater usefulness of the medical profession. This act of his will do him no good.

There is opportunity to make the question involved clean cut so that the medical profession may know exactly what it has to fight.

It is certainly timely to emphasize our battle for high standards and our rights to run our own affairs.

If Schmidt, Yarros, Miller and Bundeson are correct the society ought to board up its windows, put out the cat, uncork the chloroform and lay down to a long sonorous sleep.

It is quite evident from the editorial in the *Chicago Evening Post*, April 15, and the declarations outside of the medical profession that the medical societies are not big enough to write their own constitution if these law suggestions are correct. The sharp issue has been drawn by Dr. Schmidt's overt act in alying himself with a medical institution which specializes in treating certain diseases and looks for patients

through full page advertising in the newspapers. Dr. Schmidt is the President of the association which runs clinics for the poor, such clinics being the property and under the control of the institute doing the advertising. We try and fire Schmidt on a clear cut case of breaking our ethical law and the laymen step in and protest against our ethics.

If the clap institute is ethical in its advertising then every dispensary and hospital should be allowed to carry public advertisements in the Sunday papers—and from there it is an easy step to the individual physician who chooses to establish a charity or semi-charity clinic for the lure of any old thing and go directly to the leading public with his claim of philanthropy.

Dr. Louis Schmidt's expulsion from the society was a result of his affiliation with the Public Health institute, which has for months carried on an advertising campaign in the newspapers. This advertising is properly forbidden by the constitution and laws of the Chicago Medical Society as a measure of protection for the public against quacks and charlatans, who are to be distinguished by the very fact of such publicity methods, and to keep advertisers out of the medical fraternity.

If there is need for an institution for the treatment of venereal diseases, and there certainly is call for organized effort to prevent and control these diseases, then it should be built and fostered by the medical profession, guided to efficiency within their own ranks, with such lay cooperation as all such public health questions should have. If Dr. Schmidt had promoted the activities of the Public Health Institute within organized medicine, rather than by joining with laymen, to work outside the society by methods rankly defiant of the first principles of professional ethics, he would have received the cooperation of most good doctors instead of their just antagonism. The fact of Dr. Schmidt's dismissal from the Chicago Medical Society, which carries with it loss of membership in the state and national bodies, has nothing at all to do with the question of reducing the price of sickness, as implied by Dr. Bundeson as reported in the public press.

The question of individual fees for service, of laboratory and hospital charges, of free clinics and semi-free clinics, and other kindred matters, are to be considered and will be settled, if

at all, by doctors who already do willingly an enormous amount of charity work. Dr. Schmidt's dismissal is not based upon these questions, but is due entirely to his own lawless act.

No member of a church, lodge, or any other organization should consider himself immune to the laws governing such bodies or too big to obey them.
A. M. CORWIN, M.D.

THE IMPORTANCE OF EARLY RECOGNITION OF ALBUMIN IN CHILDREN AND YOUNG ADULTS

MIAMI, FLORIDA

To the Editor: In the January issue of your interesting Journal appears a most timely paper on the importance of the early recognition of albumin in the urine in children and young adults. This symptom usually is treated very lightly, and the essayist in describing the condition states that it should receive a more intensive study, which then may point out lesions that require prompt attention; this most particularly at the time when the child approaches puberty. As the author has pointed out albumin in the urine of young adults may be caused from malnutrition anemia, from foci of infection, in the undernourished, and other apparent causes, all placed under the caption of benign albuminurias. However, in the classification given I fail to find mention made of a condition often described as orthostatis or cyclical albuminurias, which is of tuberculo-toxic origin from the presence of tubercle bacilli somewhere in the human organism and which by some authors is given under the vague and erroneous designation as pretuberculosis albuminurias, and the symptom complex, should be added to this disclassification to complete the picture. If at a paediatric clinic and before submitting the young patients to a physical examination, a sample of urine is secured and tested for albumin and on those in which the reaction for albumin was negative an intradermal injection of Tuberculin is made in a large number of those who react to tuberculin positively, albumin will be found in the urine. This reaction may remain positive in the urine for weeks and months, long after the tuberculin reaction has faded away, even in some young adults on whom the tuberculin test was negative albumin will be found in the urine following the tuberculin application. Tuberculin given intradermally will frequently bring about a kid-

ney permeability and is then looked upon as giving evidence of a latent or hidden tuberculous infection, hence the term pretuberculous albuminurea mentioned by some writers. The albumin reaction following the application of tuberculin may be a coincidence in children at the age of puberty and as pointed out by essayist the urine may at times show albumin and for a like period or longer may be entirely free; the urine in such instances will be found, if albuminous, to be free from all anatomical elements, it is not nephritis. It should be mentioned here that to individuals with an orthostatic albuminurea, given a positive tuberculin reactive, if very minute doses of tuberculin, after the tuberculin reactive has passed off, are administered, by inunction, all symptoms of albumin in the urine will discontinue after a short time. The object of calling attention to the known facts is that we may add these observations of an albumin reaction to those already given by the author and that all albuminureas in children, like malnutrition albuminurea, orthostatic albuminurea, Idiopathic or growth albuminurea, those due to foci of infection and that in connection with all these different causes, the albuminurea in the youth or young adult brought about by the presence of the tubercle bacilli must always be considered.

JOHN RITTER.

INDIANA HAS RECENTLY JOINED THE
LIST OF STATES THAT ARE NOW
COMPILING THE HISTORY OF
MEDICINE IN THEIR RESPECTIVE SOVEREIGNTIES

In Indiana the following data is desired:
WORLD WAR RECORDS WANTED

Editor:

Will you kindly grant space in THE JOURNAL for a questionnaire to elicit the records of service of medical men of Indiana in the World war? This is for the purpose of publishing a history, as authorized by Medical Service men who responded to a call for a luncheon meeting at the Annual Session at Gary. I was chosen as permanent historian, and if a reliable and complete history is produced—and no other kind is of much value—it will be necessary to have the prompt co-operation of the officers of each county medical society, and especially of each medical man who served in the war. Kindly send the following information direct to me:

Full name and address.

Date and place of birth.

Parentage.

Family.

Schools attended and degrees.

Dates of entry and discharge from service.

Outfit or outfits, rank-promotion.

History of service.

Any other items of personal or historic interest, before, during or after the war, by self, organization, or community, including honors—military, civic or professional.

American Legion and like activities.

Any information concerning anyone now moved from the state or dead who served in the war in any capacity, who were or are now in the medical profession.

Photographs.

This material, if everyone does his bit, will be a valuable contribution to the Medical History of Indiana.

Sincerely,

WHITEFIELD BOWERS, M. D.

816 Franklin St., Michigan City, Ind.

The states of Michigan, Minnesota, Iowa, Texas, Virginia, Georgia, West Virginia, Tennessee, in all twelve or fourteen states have completed or are in process of compiling the history of their respective states.

Quoting William A. Locy the subject of medical history is assuming important proportions all over the world.

"In the last twenty-five years a wave of interest in the history of science has spread over Germany, England, France, Italy, and the United States. It is perhaps better developed in the direction of the history of medicine and its related branches than in any other field. Different societies, institutes, and periodicals devoted to the history of science have arisen; professorships in the history of medicine and the natural sciences have been created; courses in the general history of science and in the individual sciences have been introduced into the universities. As examples of this movement, I mention only the magisterial work of Karl Sudhoff and his collaborators in Germany; the fine work of the Oxford School for the history of science, nurtured by Sir Michael Foster and Sir William Osler, and now carried forward by Charles Singer and his associates; and the active movement for the history of science in Italy. The development of this subject in the United States is shown in the publication of histories of science by native authors, (Libby, Sedgwick and Tyler, Garrison, Thorndike); and in the launching of several Annals, Bulletins, etc., for the history of medicine.

BOTH THE DOCTORS AND REGISTERED
NURSES OF THIS COUNTRY SHOULD
RESENT THIS INDICTMENT

Brooklyn, N. Y., March 31, 1929.

TO THE EDITOR:

I enclose a letter to the *Literary Digest* which tells its own story. I shall probably acquire eye-strain looking for any magazine in this State to print the other side of the Sheppard-Towner Maternity Act story, save in the advertising columns.

I am sending copy of this and the *Literary Digest* letter to Mr. Parker, Chairman of the House of Representatives Committee on Interstate and Foreign Commerce through a channel which, I believe, will insure its being read.

JOHN J. A. O'REILLY, M. D.

Editor, *Literary Digest*,
364 Fourth Avenue,
Boro' Manhattan, N. Y. City.
Dear Sir:

The *Literary Digest* for March 23, 1929, at page 26, under the general title "Religion and Social Service" and the sub-title "The Sacrifice of Mothers" contains an argument for the enactment of the Bill (H. R. 17183) to extend the operation of the Sheppard-Towner Maternity Act for another five years, which was introduced February 15, 1929, because Mr. Newton's other Bill (H. R. 14070) to expand the powers of the Children's Bureau of the Federal Department of Labor to do the same work as has been done under the original Sheppard-Towner Maternity Act, was defeated.

In fairness to the other side of the controversy I ask you to publish this criticism.

The article says that "20,000 women die from causes due to childbirth—one mother for every 150 babies born," and ascribes this "startling" statement to *The Survey*, New York, quoting Hazel Corbin, general director for the Maternity Association in New York.

Assuming her proportion to be correct her totals are wrong on the basis of the total babies born in the Registration Area (1927, 1,763,035) and should read 11,734—later on the article says that in 1921, when the Act was passed, "the death rate per 1,000 live births for the registration area of the United States was 76. In 1926 it was 73. In 1927 it was 65." However, it

makes no mention of the average reduction in the *birth rate* of this nation during that period of 2.65 per thousand of Population, a total of six times 314,364 babies who will never be American citizens because they were stopped en route. It looks a little bit like curing a headache by amputating at the neck.

That it is proper to ascribe this reduction in birth rate from 24.3 in 1921 "when the Act was passed" to 22.5 in 1922; 22.4 in 1923; 22.6 in 1924 (a little rise); 21.4 in 1925 (down again); 20.6 in 1926, and 20.4 in 1927, to the operation of the Sheppard-Towner Maternity Act is demonstrated by the fact that during the five years (1921 to 1926) the agents of the Children's Bureau of the Federal Department of Labor, administering that Act, carried on an intensive campaign in the State of Montana with the result that Montana came through with the lowest birth-rate in the nation and the highest septicemia rate! and septicemia, in that connection, means blood poisoning following abortion!

Then, one Mrs. (Dr.) May Ayres Burgess says that of the "20,000 nurses who will receive diplomas from hospital training schools this year, 10,000 are not eligible for jobs as salesgirls in an enterprising department store, because they have not the educational requirement." I wonder if any really intelligent observer of affairs believes such nonsense, and I wonder why the *registered nurses of this country do not resent this indictment*, and I wonder why the doctors of this country, who train those nurses and *know the facts*, do not rise up and rebuke such an aspersion of their intelligent care of the sick.

Then these agents interviewed 23,000 mothers and only fourteen declined information. Sure. The American people are so decent and respectful of authority that, in proportion to their ignorance, they open up to any one wearing a badge. Any one, in the know, can readily understand that the "typical" two cases of the women in the Georgia Cracker region (from the dialect) and the illiterate negroes of the Southland (again from dialect) are chock-full of this "charms and conjurs and pow-wow," but it does seem rather strained economy for the government to spend more than \$2,000,000 per annum (with the 50-50 contributions) to gather a lot of statistics among people whose men will go right ahead using their women, and whose women will glory

in large families and take shame if they are childless and to exercise their faculties for preventing babies in a State like Montana whose men and women should produce the backbone of the nation—but do not as the whispered word of these agents make them wise how to prevent births and thereby reduce the “death rate per 1,000 births” of which the propagandists boast.

Just why, in the name of equity, the Empire State of New York should be penalized for being progressive and made to pay huge sums of money for these “typical” Georgia crackers and Alabama negroes. New York pays twenty-five cents of every dollar of Internal Revenue; that means more than half a million dollars of the two-million-plus under this Sheppard-Towner Maternity (birth control) Act; in return New York gets the privilege of spending \$155,744—of its own money—provided—it first submits *its* plans for the care of *its* prospective mothers to the chief of the Children’s Bureau of the Federal Department of Labor who, in her discretion, may throw them out the window unless they agree with the views of herself and the uplift groups which help her get these wild statistics. Of this half million dollars, per annum, which New York State pays, New York City pays 75 percent, or \$375,000—but, thank God, New York City does not have to get any of the benefits (?) of Sheppard-Towner Maternityism.

The Sheppard-Towner Maternity Act should not be extended beyond June 30, 1929; we would be richer in money and manpower in this nation had it never been enacted.

Very truly,
JOHN J. A. O'REILLY, M. D.

INDIANA DOCTOR LAUDS THE WORK OF OUR LEGISLATIVE COMMITTEE

Indianapolis, Indiana, April 22, 1929.
Dr. J. R. Neal, Chairman,
Legislative Committee,
Illinois State Medical Society,
Springfield, Ill.
My dear Doctor Neal:

Thank you very much for your circular letter of April 19 containing the good news of the defeat of the periodically recurring effort of the medical fadists of Illinois in their attempt to get legal standing ground.

I have observed your splendid work in fight-

ing for higher medical education through the medium of sound legislation, and I beg to take this occasion to commend it. You have been doing the profession a fine service for a long time and it requires a tremendous amount of time and energy. In some respects it is a thankless job when it comes to those members of the medical profession who take no interest in aiding their legislative committee. However, you have a host of good men in Illinois who do take an interest and to them with you as their leader the profession continues to look for the preservation of the highest ideals.

Having been chairman of the Committee on Public Policy and Legislation of the Indiana State Medical Association for twenty-four years I know somewhat of the difficulties involved. I am too old for active service but my interest is unceasing. For the past six or seven years I have been Chairman of the Bureau of Publicity of our State Medical Association and have had gratifying evidence of the splendid results of wisely planned medical legislation.

W. N. WISHARD, M.D.

MEDICAL SERVICE PROGRAM OF THE JULIUS ROSENWALD FUND

I

Background. The Julius Rosenwald Fund, established in 1917, and at first limited to aiding Negro rural schools in the South, was reorganized on January 1, 1928, and now has a board of eleven trustees and a greatly broadened scope. In the spring of 1928, it was determined by the Board to take an interest in medical work. After conferences with representatives of the American Medical Association and other physicians and advisors, it was decided that the Medical Service Program of the Fund would be directed primarily to the extension or distribution of medical service rather than medical education or laboratory research.

II

General Policy. The principle of providing charitable medical service for those who are entirely unable to pay is well established in governmental policy as well as in voluntary philanthropy. It, therefore, appears unnecessary for the Fund to contribute to charitable care. Medical service has become complex and charges for hospital, laboratory, x-ray and nursing services, medicines and appliances, now enter into the outlay for sickness, as well as the fees of physicians and dentists. It is believed, that a large part of the population who are self-supporting often find difficulty in securing sufficient and satisfactory medical service without financial hardship.

It has therefore been determined that the fund will

undertake to encourage and assist experiments whereby present medical knowledge and available professional skill may be made more accessible to persons of moderate means.

III

Preventive Medicine. The Fund interprets medical service broadly as including care in sickness together with those forms of preventive medicine which apply to the individual. The financial burden of sickness can certainly be reduced through the provision of effective medical care which disease is in early stages. Prevention through care at such stages should be furthered both through educational measures directed toward the public and through the extension of facilities.

Sanitation and other public health control of the environment are well-accepted parts of governmental health practice; and other foundations have long been working with government agencies in this field. This makes it unnecessary for the Julius Rosenwald Fund to aid here.

IV

Cooperation with Medical and Other Organizations. Modern medical care is essentially a partnership between the public which uses and finances medical service and the medical profession which furnishes it.

High standards of service, personal contact between physician and patient, and remuneration consistent with the best traditions of the medical profession are essential and must be maintained. Whatever enables more people to secure better curative and preventive service and to pay for it in a self-respecting way will enhance public regard for the profession and will broaden the economic basis of its support.

V

Hospitals, Clinics. The increasing use of hospitals has brought forcibly to attention the need of provision for patients who will not accept the traditional charity of ward service and whose means are insufficient to meet, without hardship, the institutional charges and professional fees of the usual private service.

A similar problem has arisen in the diagnosis and treatment of patients in ambulatory stages of disease, particularly in the specialties or when the needed service is expensive or prolonged.

In a number of cities, hospitals are beginning to make adaptations to the circumstances and demands of patients of this large middle class, through changes in construction or administration of their bed services.

For patients not confined to bed, pay clinics have developed, either maintained by physicians alone (group clinics) or by physicians under the auspices of hospitals or of independent, non-profit organizations. Such clinics now exist in a number of communities, some furnishing diagnosis only, others both diagnosis and treatment.

Experiments are also under way in reducing the expense of laboratory service, in organizing medical centers and public health services for towns and rural areas, and in plans of installment payment or voluntary insurance against the costs of sickness.

The Julius Rosenwald Fund considers that the en-

couragement of well-devised experiments of these types will be a public benefit. They should be planned with consideration of local conditions in each community in cooperation with physicians and other interested groups.

VI

Cooperation by the Fund. It is not the intention of the Fund to administer medical services directly. The Fund will be prepared to cooperate financially with medical societies, hospitals, clinics, or nursing organizations; and with industrial, fraternal and other lay organizations which are interested in the improvement of facilities for their members. It is recognized that there are now many such bodies which wish to undertake experiments in furnishing services to persons of moderate means. Such undertakings should ultimately be self-supporting, but may incur initial deficits and organizations may be deterred from action by the risk of financial loss during an experimental period.

The general policy of the Fund will be to provide a share of initial expense or to underwrite a share of the deficit during an agreed period of time, for the following kinds of projects:

(a) Clinics for persons of moderate means in which patients pay fees approximating cost, including remuneration for the physicians.

(b) Hospital projects for bed care of persons of moderate means, in which there is provision for dealing with the patient's total bill, i. e., both institutional charges and professional fees, through understandings reached between the administrative authorities of the institution and the medical staff.

(c) Medical, dental and nursing services for small communities or special groups, worked out in cooperation with medical societies or other organizations.

VII

Service to Negroes. Facilities for Negroes are generally far below those for whites, and Mr. Rosenwald has had a long-standing interest in the Negro. The medical program in relation to Negroes will therefore be extended somewhat more broadly. It may aid medical and nursing schools, hospitals and clinics, especially to improve facilities for the training of Negro physicians, internes and nurses, including public health nurses. In extending health services to Negroes, the Fund will cooperate with state departments of health and with educational institutions.

VIII

Investigation and Publication. The Fund will undertake such studies as may be necessary for the determination of policies or of practical programs and for the appraisal of projects to which aid has been extended. All projects will be regarded as experiments which, through study and publication, should furnish information and stimulus to the professional and general public.

IX

Further Information. Explanation of any points referred to in this statement, appeals for aid, or inquiries concerning the condition under which aid might be extended to specific projects, should be addressed

to Michael M. Davis, Director for Medical Services, 925 South Homan Avenue, Chicago.

CHICAGO & NORTH WESTERN RAILROAD SPECIAL TRAIN SERVICE TO THE A. M. A. MEETING

The American Medical Association annual meeting in Portland, Oregon, July 8-12, 1929.

In addition to several special trains and special car parties for state and local medical societies, the Chicago & North Western Ry.-Union Pacific System will operate special sleeping cars account of the Portland Meeting on the popular Portland Limited, leaving Chicago 10:00 p. m. daily, arriving Portland at 4:00 p. m. the third day, also on the Continental Limited leaving Chicago 2:30 p. m. daily, arriving Portland at 8:30 a. m. the third day.

Both of these famous trains operate over the only double tracked line between Chicago and Omaha, protected by automatic train control, thence over the Overland Route of the Union Pacific System, through Cheyenne, Pocatello and Boise, for 200 miles along the beautiful Columbia River.

Equipment includes the finest all-steel drawing room, compartment open section sleeping cars, dining cars, and observation cars, with barber, bath, valet and maid service.

Reservations and detailed information regarding fares, routes and points of interest may be secured from Mr. H. G. Van Winkle, General Agent, C. & N. W. Ry. Co., 148 S. Clark St., Chicago.

COLLEGE, ALUMNI OR FRATERNITY DINNERS

Medical colleges, their alumni fraternities or classes, desiring to have reunions in connection with the Annual Meeting in Peoria may arrange to have them at noon on Wednesday, May 22, 1929, with Dr. Roland Lester Green of Peoria, Chairman of the Committee on Arrangements in Peoria for those interested. These dinners may be planned for 12:00 noon, so that they will not interfere with the afternoon schedule which begins at 2:00 P. M. with the Oration on Surgery.

WANTED: TRANSACTIONS OF THE ILLINOIS STATE MEDICAL SOCIETY

Northwestern University desires transactions of the Illinois State Medical Society as follows: 1st—22nd, 1850-1872.

NOTE: Inasmuch as back numbers of the Journal will in all likelihood come from several sources we request that the volumes be forwarded directly to the editor, 185 N. Wabash Avenue, Chicago, where the collection can be checked to see that the order has been fully taken care of.

WANTED: BACK NUMBERS OF THE ILLINOIS MEDICAL JOURNAL. We have requests from two different libraries as follows: April, 1926.

BUREAU OF SCIENCE LIBRARY, MANILA, PHILIPPINE ISLANDS, DESIRES BACK NUMBERS OF THE ILLINOIS MEDICAL JOURNAL

The Bureau of Science Library, Department of Agricultural and Natural Resources, Manila, Philippine Islands, desires back numbers of the Journal as follows:

Vol. 25, No. 1, 2, 1914.

Vol. 26, No. 5, 1914.

Vol. 27, No. 1, 1915.

Vol. 31, Nos. 2, 3 and 4, 1917.

Vol. 32, Nos. 2 and 3, 1917.

RAVENSWOOD HOSPITAL WANTS BACK NUMBERS OF ILLINOIS MEDICAL JOURNAL

The Ravenswood Hospital, Chicago, desires back numbers of the Illinois Medical Journal as follows:

Vol. 29 & 30 complete, 1916.

Vol. 33 complete, 1918.

CENTRALIA, WASHINGTON, TEACHERS RECEIVE FREE MEDICAL CARE

In the *Nation's Schools* March, 1929, appears the following:

Under the terms of a hospital-contract which has been drawn up in Centralia, Wash., all teachers and their wives and children are eligible to membership in a club which assures them expert medical attention, free hospital service and necessary medicines in times of illness. The membership fee is one dollar. To date there are eighty-five members enrolled, according to a report in the *Kansas Teacher*. The name of the hospital that provides this service was not mentioned.

MEDICAL ADVERTISING SOLICITORS WANTED

The ILLINOIS MEDICAL JOURNAL desires in Chicago and in each of the principle cities in the United States advertising solicitors, preferably persons with medical advertising experience. No guaranteed salary. Compensation on commission basis only.

ILLINOIS MEDICAL JOURNAL
185 North Wabash Avenue, Chicago, Illinois

Original Articles

WHAT I HAVE LEARNED IN DOING SIXTY CESAREAN SECTIONS*

J. HARVEY BACON, M.D.

PEORIA, ILL.

To avoid any misunderstanding, I plead guilty to a limited obstetrical experience. I have approached this subject with a surgeon's viewpoint, and this I hope will excuse me from a detailed discussion of the other obstetrical procedures for which the Cesarean section is substituted. To these procedures I, however, claim a sufficiently extensive working knowledge to fairly appraise their value. Most of these cases have been referred to me as I have only accepted potential surgical cases. They represent only a very small per cent of the total obstetrical cases from which they were gleaned. Osler frequently told his patients that they did not select the right grandparents and with equal truth he might have added or the right obstetrician. I thoroughly believe in the truism that "the child has a right to be well born."

It was with some chagrin that a few years ago I saw a girl, the first child I delivered in private practice, sent to the reform school. It was a long hard labor in a home of an old multipara. I sat tight and let nature take its course as I had been taught. I have often wondered if anything I did at the time of that delivery, had been a factor which so influenced her mental make-up as to cause her to become delinquent. I am still wondering if that child was well born.

I can appreciate the danger of the appeal of the dramatic section birth, as opposed to the slow hard prosaic one, often ending with a forceps damaged fetal head or torn birth canal of the mother.

I well remember the wise council of Williams, my professor of obstetrics as a student, against the easy habit of doing a section for minor indications, but I also remember my more vivid personal experiences. Soon after starting private practice I was called upon to administer a chloroform anesthesia in a delivery. It was in a well-to-do home. From one side of a massive, shiny, double brass bed, I gave the anesthetic to the expectant primiparous mother with one hand while

with the other I took a very active part in a lively tug of war. On the other side of that bed a robust old practitioner very effectively used a high forceps. After a long siege, during which I several times called "*Hold*," to get the patient more entirely on the bed, he called me to his side. His flushed face was running with perspiration. Between breaths he asked me, "What would you do with a case like that?" I answered "Repair it." He said, "Go to it." I did, and can not forget it. He had resuscitated the babe whose face and head did not give promise of any lengthy mundane career. There was a serious hemorrhage of bright blood taking place from an extensively lacerated perinaeum. The tear extended up the rectum at least three inches. How either managed to live I do not know. I have wondered what grade of mentality that child developed. They moved to Chicago in a few months and contact was lost.

Soon after another practitioner asked me to again preside over the administration of anesthesia in a prolonged dry labor at home. He applied forceps. I think he mistook the position of the head, which was an occiput posterior as he did not wait for rotation. However he also was robust and had a determination which overcame all obstacles. Results were not gratifying but more humane, the babe soon died and the mother followed within the week, and now, peace to their ashes, both these old practitioners have passed on.

Any procedure, selected in these severer cases where a normal spontaneous birth is not taking place, must take cognizance of the morbidity as well as the mortality, to both mother and child. Mortality following any birth procedure to either mother or child is tragic, but ultimately may not produce the mass of human misery that years of morbidity will. After canvassing my results I find as the years go by that I am accumulating an ever increasing number of indications for which Cesarean section seems justifiable. I do not consider myself a radical in this program, but just keeping step with the trend of the time.

One must always remember that it is quite frequently a combination of symptoms, rather than one outstanding one; such as, a markedly contracted pelvis for which a section is done. In other words, it is the condition of the patient as a whole, which turns the scale and not alone the size of the pelvis or position of the child;

*Read before the Section on Surgery, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 7, 1928.

not merely whether this woman or child can weather the few hours of the labor, but what will be the resulting health and productivity of these individuals through the coming years. As in orthopedic surgery it is functional results that must be considered as well as the anatomical; so in obstetrics we must consider the resulting ability of mother and child to function normally.

I will catalogue the conditions for which I have done a section in order of their frequency, viz: contracted pelvis, eclampsia, excessively prolonged labor from undetermined causes in weak individuals, previous Cesarean section, excessively fat women, impacted head in face presentation, uterine atony, maternal exhaustion, placenta previa centralis, fetal exhaustion, fetal thyroid tumor with extension of fetal head, uterine myoma occupying the pelvis, active tuberculosis, large abscess of Bartholin gland at labor, large varix of labia and buttock, premature separation of placenta, severe abdominal injury near term, recent abdominal operation in primipara with slightly contracted pelvis, rupture of the uterus, severe heart lesion, ovarian cysts, frozen pelvis, ankylosis of hip in abduction and flexion, recent fracture of thigh, insanity (following with a Porro).

The following is a list of theoretical causes for which section is preferable: Death of the mother, extrauterine pregnancy at term, aneurism of the aorta, extremely high blood pressure, cancer of the cervix, after amputation of the cervix, moderately contracted pelvis in old primiparas, paralytic cases, placenta previa lateralis in weak individuals, rupture of the bladder near term, fracture of the spine, fracture of the pelvis, Pott's disease, exostoses of pelvic bones, unreduced fracture of the acetabulum and abnormalities of the fetus, such as, hydrocephalus or Siamese twins.

All agree that the mother should be given every safeguard of modern surgery while undergoing a section. Infection is the most serious maternal hazard attendant upon section. Often it is very difficult to accurately determine the amount of contamination and the danger of infection as most of these cases are referred only after they have been given the test of labor and it has failed.

I have had three serious maternal infections, but so far no case of general peritonitis. All of

these had a purulent discharge previous to section, and the hazard was debated but overruled in face of the existing crisis. Several cases which otherwise indicated a section have been refused because of frequent vaginal examinations as I felt infection would too greatly jeopardise the mother. I do not know where to draw the line about vaginal examinations but it is probably more to the point in knowing who made the examination and how it was done rather than the number of examinations made. However, do not underestimate the potential infection every vaginal examination carries.

That time for extended examinations and mature deliberations is often lacking is well illustrated by the two following brief case reports:

I was called to the hospital by a physician one afternoon to see a middle aged primipara who had been in labor for several hours. She seemed to be in fair condition, but was making very slow progress when suddenly she collapsed. A hurried examination showed a small woman past thirty that looked exhausted. She had an anxious expression, a pasty color, a weak pulse rate of 120 per minute, a systolic of 135 mm, hg, and rapid, shallow respirations. There was a cephalic presentation, fetal heart beat very weak, rate about 120 per minute. An external Bordeloques of 14½ cm gave the clue to the lack of progress.

One had to select between a craniotomy or section. With husband sanctioning, a section was determined upon. When the anesthesia had just started, the mother again collapsed and apparently died. Artificial respiration was carried out by the anesthetist with the aid of my assistant. I did a section upon an apparently dead woman and removed a live but somewhat cyanotic babe. After a few minutes, feeble signs of respiration were noticed and soon the circulation became re-established. The uterus and abdomen were closed without assistance. Today both mother and child are living and well.

Case 2: A young primipara came to my office near term with history of slight bleeding. I could find nothing amiss upon examination but was suspicious of a placenta lateralis. Patient not wishing to enter a hospital then, went home, promising to remain quiet and not to be left alone. The second night following I was called by that patient's husband, who stated that his wife was not in pain but had left a trail of blood on coming from the bathroom. She was taken to the hospital without delay and the operating room held in readiness. I arrived at the hospital in time to see my patient brought in leaving a tiny trail of blood on the floor. A section was executed as fast as possible. The placenta, which was attached high on the left lateral wall, was partly detached over possibly one-third of its area. Here a large dark clot separated it

from the uterine wall. This was a premature partial separation of the placenta or placenta abruptio as some call it. Only quick decision of type of treatment and rapid work saved the mother and child in both these cases.

In this series of sixty sections there has been a mortality in two or three and one-third per cent. The first was in a young primipara of eighteen, weighing about 225 pounds. The husband on calling me at night stated his wife was having chills but would not speak to him. Being suspicious that she was having a convulsion I had her sent to the hospital in an ambulance and met her there. She was then having a terrific convulsion and others followed fast and furious. Urine contained blood, albumin, and casts galore. Her feet were swollen and edematous. At section a dead fetus was found. She bled freely at section and convulsion followed convulsion for eleven hours when she died.

The second fatal case was that of a primipara of thirty-five, weighing about eighty pounds, who had been in labor for over thirty hours. Progress was apparently at a standstill, she being quite exhausted. A moderately contracted pelvis in a small weakly individual tells the tale. A section was done, obtaining a small shrunken babe which lived a day, and the mother faded away on the fifth. The first was a nephritic and the second one had chronic tuberculosis. Section was the only possible salvation of the fetus in either case. If there had been a chance in the first case of determining that the fetus was dead, possibly a section might not have been attempted. However, the status of a fetus is not always readily determined in the excessively fat woman, even in the absence of convulsions.

As to the morbidity, I have had in this group only three cases with a hospital stay of three weeks or over. In only one was it excessively prolonged. This was after the second section, in a woman with uterus displaced to the right and who complained severely of pain in the right side of her abdomen with every uterine contraction. No progress being made and the mother becoming more excited and less controllable, a section was done. We feared that the severe pain complained of, might be due to a rupturing uterus, rather than the pull upon adhesions. She did not do well from the start. Vomited frequently and complained of pain in region of the gall bladder. Although the bowels moved, vomiting persisted. On the fifth day under a local anes-

thetic a rubber drainage tube was placed in the ileum. After ten days the tube was withdrawn and a fecal fistula persisted. First attempted closure had to be ripped out on account of renewed vomiting. Several months later on return to the hospital the fistula was closed and the patient has continued well. This case had pathology in the gall bladder, and was also markedly disturbed over the sudden disappearance of her husband.

During the first five days following a section there is liable to be considerable abdominal distention, otherwise these cases compare favorably with any laparotomy. As a rule these patients leave the hospital on the fourteenth day and are able to be up and about. The morbidity following section has been less in my experience than in high forceps deliveries.

The preparation has been much the same as in any laparotomy. The lower bowels are emptied by an enema, the abdomen is shaved, washed with alcohol, and covered by a sterile towel. The usual preliminary morphia has been omitted out of fear of its harmful effect upon the child. Possibly I should have given atropin to dry the throat but I have usually found that these cases take the ether anesthesia kindly and go to sleep quickly. This is explained as resulting from their exhaustion.

On the operating table the abdomen is painted with 5% alcoholic solution of picric acid and draped. Only one assistant is used beside the anesthetist. As soon as the anesthetic is started an injection of 1 mil of ergot is injected into the arm. One mil of pituitrin S is injected at the time the incision is made. These injections are so timed that the uterus will be contracting while the placenta is being extracted. On opening the abdomen large gauze packs rung out of hot saline are packed firmly around the uterus. These packs have the double purpose of pressing aside the intestines but more particularly of absorbing all amniotic fluid which might escape on opening the uterus. If infection is present it seems probable that the amniotic fluid would be a vehicle of transmission. The vernix caseosa may also carry infection. The uterine wall is quickly incised as low as possible on its anterior wall, ignoring the placental attachment but avoiding the bladder. The incision is made just large enough to allow the passage of the fetal head without tearing the uterine wall. The use of

a suction apparatus used at this time for the evacuation of the amniotic fluid has merit. The fetus is delivered feet first. While the operator is clamping the cord the assistant delivers the uterus from the abdominal cavity, using his flexed fingers in the upper end of the uterine incision for traction. The uterus is turned wrong-side out and the placenta and membranes are removed. Any remnants are quickly wiped off by a dry towel. The uterus is then turned peritoneal side out and the assistant grasps it about the lower segment, controlling the blood supply. By this time the pituitrin will have acted effectively and the walls of the uterus will be firmly contracted. If the pituitrin was not active or the assistant was too energetic, not allowing the pituitrin sufficient time to pass through the blood vessels, the uterus will be flabby and bleed excessively.

If there have been vaginal examinations, early rupture of the membranes, prolonged labor, or history of purulent discharge, the mucosa of the lower uterine segment is swabbed with tincture of iodine. The next procedure is one I first saw used in Polack's Clinic. A piece of iodoform gauze the size of one's fist is pushed deeply into the uterine cavity and left there. Preferably a small piece of this gauze should project into the vagina. It is removed per vagina about the fifth day if not previously expelled by the patient. I have never known any harmful effects from its use, but one must be careful not to incorporate the gauze pack in the uterine sutures. I do not entirely understand its action but it apparently assists the uterus to contract firmly and aids in drainage. It seems to make the classical nearly as safe as the newer modifications, but through limited experience one may form a fallacious judgment. Certainly it gives no one the right to be careless.

In the presence of known serious infection I believe that a Porro should be done. I have also done it in the presence of fibroids, rupture of the uterus, for a ragged tear at the lower end of a small uterine incision making a good closure difficult and in active tuberculosis. It would seem that the more frequent use of the Porro operation is consistent with good practice.

So far I am not satisfied with my Porro technic. It consumes too much time and is too costly in blood. I have not been fortunate enough to see a master perform a Porro. The

tissue is so friable and the blood supply so rich that the technic of ordinary subtotal hysterectomy is hardly satisfactory. However, the convalescence has been smoother in my cases than in those of the classical section.

In closure of the uterus three rows of running sutures are used with an occasional interrupted suture in the medium row. These should be carefully placed and absolute hemostasis is demanded. A few large veins may be ligated. The abdominal cavity must be dry before closure of the abdominal wall. Any amniotic fluid or blood left in the abdominal cavity will cause a rise in the postoperative temperature. An abdominal binder is applied in addition to major straps especially in obese women.

On return to bed the foot is raised and the Murphy drip with a 5% glucose solution is given at the rate of a pint every six hours for the first three days. This is salt free in the nephritics cases. One mil of pituitrin is given every four hours during the first day in weak individuals and where there has been considerable bleeding. I have no especially good way of caring for the distressing gas distention except by its prevention in careful handling of the intestines, complete hemostasis and careful peritoneal toilet. I believe a section should be done as rapidly as is consistent with good work. Especially is this true up to the time the baby is born. If the section is done because of the danger to the child any unnecessary anesthesia must add to the danger. I have the conviction that many of the incompetents, this old world is cluttered up with, are perhaps a little more incompetent because of birth injuries.

There comes the question of the frequency of vaginal examinations as a contra-indication to a section. A vaginal examination always adds to the danger of infection, but much depends upon the presence of a pus discharge and the carefulness with which the examinations are made. All doctors practicing obstetrics should be urged not to destroy the possibility of a section in their serious cases by carelessness in their asepsis of making vaginal examinations. Let me suggest a rectal examination might be sufficient.

All primiparas should demand of their doctors that a pelvic measurement, urinalysis and blood pressure determination be made at the onset of their pregnancy. An aviator demands a safe

landing field before he takes the air. Can the pregnant woman consistently demand less?

"Once a Cesarean always a Cesarean" is not strictly true. Any pregnancy following a Cesarean should be followed critically and if there are no absolute indications the patient might be allowed to have a trial of labor in a hospital under watchful care of the obstetrician with operating service in readiness.

Cesarean section at best has a limited field. Cesarean section is justified by its results only. It should certainly never be used when one could rationally expect a normal delivery without serious danger to mother or child; neither could it be rightfully denied them where other methods would incur more serious danger to either or both. There are some absolute indications which all concede and many more debatable ones that now vary with surgeons, hospitals and localities.

When should one sterilize the mother in a section? It seems justified whenever further pregnancies jeopardize the woman's existence or the product of labor cannot be expected to add to the world's betterment. However I cannot with easy conscience suggest other surgery in these cases, unless it is absolutely necessary.

Years ago it seemed to me that eclampsia was almost an absolute indication in any woman near term, especially when severe or in a primipara. The general education of women to the dangers of the pregnant state have decidedly diminished frequency of the toxemias of pregnancy, thanks to the propaganda of *Hygeia*, the women's clubs and magazines, as adjuncts to the teachings of the family doctor. The conservative treatment of eclampsia with intravenous injection of large amounts of 10% solution of magnesium sulphate, glucose and morphin is proving a safe method.

Those who have once seen a placenta previa mother bleed dry will certainly be more alert to that danger the next time. It is by far the safest method for both mother and child, especially if the cervix is not dilated. It is the only method in premature separation of the placenta if the life of the babe is considered.

How small may be the bony outlet and a delivery be possible without too great a danger to mother and child? I do not know of any rule, good in all cases, there being many other factors involved. We have been rightfully taught that there is some intra-cranial hemorrhage in all

births. The more severe and the more prolonged the labor the greater the hemorrhage.. Neither is the brain the only part of the child to suffer. I have been called to care for four broken femurs, two fractured humeri, brachial palsies, dislocated arms, facial disfigurements, without mentioning the fetal deaths.

One cannot dismiss the maternal morbidity with the simple statement "She is a bear for taking punishment." I am positive that perineal repair is assuming a much smaller percentage of my gynecological work since the acceptance of wider indications for the section. The increasing number of hospital births and improved obstetrical practice have a bearing on this improvement. Until recently the section cases came only as a last resort and were in an extremely serious condition. In the future with the common use of better prenatal care for mothers we may expect more cases of section in selective surgery. Selective surgery carries with it a better morbidity and mortality record.

Oh ye obstetricians! Let it no longer be written of a Mother in Israel, as of old, that "She suffered many things at the hands of the physicians."

May I now humbly crave your pardon for the frequent use of the pronoun I and the narrating only, of my personal experiences and opinions. I beg free and uncensored discussion. Thank you.

DISCUSSION

Dr. J. B. DeLee, Chicago: First of all, I want to tell Dr. Bacon how to prevent distention and gas pains and serious dilatation of the stomach after Cesarean section. Let him learn how to perform the low cervical Cesarean and then his troubles will disappear. The patients may have a few gas pains which are indeed very favorable. I like to have my patients have gas pains. When they do not have them I worry. They may have a little distention. The old times when I was running around day and night with a stomach tube have passed. That was when I was doing the classical Cesarean section.

I want to take issue with Dr. Bacon when he says that an obstetrician should have consultation before he is permitted to do a Cesarean section. Why should an obstetrician be required to have consultation when a surgeon does not have to have consultation and the counsel of the Board or a Committee of the hospital to pass on the propriety of doing a gastro-enterostomy or appendectomy? That should be left to the wisdom of the obstetrician. There is nothing more reprehensible in a man's doing unnecessary obstetrics than in doing unnecessary surgery. I defy any man to contradict me

when I make the statement that there is just as much bad surgery being done as bad Cesarean sections. On the other hand, I agree perfectly with Dr. Toombs that too many Cesarean sections are being done, that the indications are not being properly made, that the mortality is unnecessarily high and that the morbidity is unnecessarily great. Something should be done about it and it has to be done in the education of the medical profession, not only their mental education but their moral education. Some years ago Dr. Holmes wrote a paper called "Obstetrics a Lost Art." The obstetrician should learn this art. A surgeon gets a complicated labor case and the first thing he thinks of is Cesarean section. For example, the idea of turning the woman on her side to favor rotation in occiput posterior never enters his head. If a man who understands obstetrics comes in and turns the woman on the side which permits rotation of the baby, he is entitled to much more credit than the man who does a cutting operation. There is a great deal to be gained by a study of the mechanics of labor. If each community that has a small hospital would have a small, good maternity ward, preferably a maternity cottage, in charge of a real obstetrician, to whom the Cesarean sections are assigned, the number of Cesarean sections will decrease and the mortality throughout the United States will decrease. I am convinced that the mortality throughout the United States is largely due to Cesarean section and version. Another cause is that the asepsis in which they are performed is not exceptionally great. One reason is the performance of the classical Cesarean section. We forget, at least most surgeons forget, if they ever knew, that the uterus is a hollow organ connected with the outside the same as the intestine and the precaution taken in the opening of this hollow organ should be the same as opening an intestine. That is the cause of infection in the Cesarean section of the old classic type. It is not possible to close the hollow organ properly.

I cannot understand why surgeons with enough ability to take out an appendix or an infected gall bladder should shrink from doing a low cervical Cesarean. It is just as easy as an ordinary gall bladder. It is no harder in all its complications than a bad gall bladder. I saw a surgeon capable of taking out the Gasserian ganglion, shrink from doing a low cervical. Our interns at the hospital, after a few months, will do a low cervical section or laparotrachelotomy.

The indication of contracted pelvis with great disproportion is rare in the United States. Seventy-five per cent. of the contracted pelves we know will terminate spontaneously successfully to mother and baby if we give them time. Some of the babies are injured. The moderately contracted pelvis comes in for Cesarean section when labor is prolonged and when the head remains high, but only in ideal surroundings and with the low cervical in-

cision. The alternative is high forceps as a trial operation.

Placenta previa.—In old times we used to consider Cesarean section the last resort in placenta previa. That is all changed. While some authorities believe that the low cervical Cesarean is not applicable to placenta previa, I believe it is. I believe it is one of the best things and where formerly it was used as a last resort, now it is the first thing to think about. When we have placenta previa should we deliver by Cesarean or by version or a bag? Cesarean section given good conditions, a safe operator—version followed by watchful expectancy under the opposite conditions—the bag method in the borderline.

As to eclampsia, Williams says that Cesarean section is the worst possible treatment for eclampsia. I agree with him. To put it a little more concisely, the old classical is the worst treatment for eclampsia; to put it a little more generally, the old classical under general anesthesia is the worst treatment, but the low cervical under local anesthesia is one of the best treatments for eclampsia. That does not mean that every case of eclampsia should be subjected to Cesarean section. It means, first, that every operation in eclampsia should be done under local; second, in the presence of any other indication for Cesarean section in eclampsia a low cervical should be selected. Going a little farther, in primipara with a large child, who is having fits, a low cervical should be the first treatment. When should you not do it? In the multipara with a soft cervix who can be easily delivered from below; in the multipara with a good large pelvis if she has had no difficulty in the previous operations; in the primipara with the cervix beginning to open, the head down and the cervix soft. In these types if you leave the patient alone, give her magnesium sulphate, she will deliver herself spontaneously or under episiotomy and local anesthesia. The dangers in the operative treatment of eclampsia are largely due to the anesthesia. I am very much pleased to hear that Williams is coming around to that point of view.

Other indications were mentioned by Dr. Bacon. I do not understand them. He would do a Cesarean section for hydrocephalus which I consider bad practice. It is easy to puncture the head through the vagina and then the rest of the baby can be delivered. All sorts of indications will arise for Cesarean section, but we must not forget that nature can do much if trusted.

Dr. Rudolph W. Holmes, University, Virginia: I have felt for many years that if Cesarean section took all night to perform, and normal labor an half hour, more or less, the general surgeons would be attending normal labors. We all know, as Dr. Toombs has stated, that the fundamental fact is there is a lack of proper education in obstetrics. There is not one medical school in America that is adequately teaching obstetrics—that is, is able to prepare undergraduate students for the practice of

pathologic obstetrics: I doubt that is the province of undergraduate instruction: a post graduate course is indispensable for the preparation of a man for the grave complications of obstetrics. The clinical material is so small that, at best, the students may derive a knowledge of general principles only—further study and experience will equip a physician for the onerous responsibility of attending women who are sorely beset with serious accidents of pregnancy and labor. The usual medical school requires from ten to twenty personally attending confinements for graduation; they, then, may see numerous Cesareans in the large clinic—and rarely will they see any other operative procedure except an occasional forcep operation. As a result, the students graduate with a distorted idea that section is the panacea for all obstetric ills. For example, at Jefferson, two or three years ago, one woman in six was delivered by Cesarean in the maternity clinic: at Harvard it is about one in twelve. One of my patients who had had three easy, quick labors, went to a Cesareanist who offered to deliver her fourth baby by section if she wanted it. I believe it is entirely a matter of education, both for the obstetrician and general practitioner. Let the day soon come that the Art of Obstetrics will come into its own—but it is not coming by routine Cesareans.

We all practice the act of external pelvimetry. Too many of us rely on the numerical figures and ignore the main facts of this external pelvimetry. Williams, so far as I know, alone states that mensuration of the external points of the pelvis is absolutely valueless in the determination of pelvic capacity—a fact I have taught for many years. External pelvimetry will indicate two things—it may point out a suspicion of pelvic deformity, and secondly, it will give the observer knowledge of the type of pelvic contraction. Internal mensuration or pelvimetry alone will give concrete evidences of contractions. The x-ray, by the Thum method, requires higher mathematics to work out the formula, but gives a living picture of pelvic capacity; all the other methods of mensuration have the same essential fault in that they present but half of the picture. It is not so much the fact of pelvic contraction that counts as the fact of cephalo-pelvic disproportion. Unfortunately, at the present moment, no methods will surely give this data except a wise judgment tinged with an obstetric conscience. On the other side of the picture on the Ahlfeld's methods, the methods of Munroe-Kerr and Mueller, but they again present the fetal side of the problem. A true criterion of the obstetric possibility of the individual woman comes only from a discriminating "test of labor," for over seventy-five per cent. of women with contracted pelvis will have spontaneous deliveries.

Eclampsia! I have never performed a section on an eclamptic per se: I have twice done it on account of a complicating pelvic deformity, and twice on the moribund eclamptic woman that the baby might be saved. For many years I have held that

eclampsia is not a surgical disease: it took many years for the teaching of Stroganoff to gain its true position that eclampsia was purely a medical problem. In those clinics where a modified Stroganoff method is pursued the mortality has fallen roughly one half since the routine operative treatment has been discarded. Certain pre-eclampsics may most properly be handled by a timely Cesarean, but the moment of the onset of convulsions I hold that surgery rarely has a place. I have asked general surgeons this question: "Would you operate on a comatose patient, with anhydrosis, convulsions, anuria, perhaps, enormously edematous, constipation almost bordering on obstruction so obstinate it is?" Any surgeon would answer, "Certainly not." That is my attitude on eclampsia.

I hold no brief against the general surgeon of a small community, where he alone is able to perform abdominal surgery, and where no physician is available to handle a complicated obstetric case, who does the best he knows how under his given circumstances and does perform a Cesarean—he is doing his best. My brief is against the general surgeon of large communities where obstetricians of note are available, even on the staff of the hospital where the surgeon operates, and dares to perform a Cesarean, when his practice and training have been foreign to obstetric work. I believe it comes down to this—that no man, surgeon or otherwise, has a moral right to touch an obstetric case, much less to perform a section, unless he is in close personal and intimate contact with normal and abnormal obstetrics, for he alone can weigh the evidences and can say, from his experience, whether or no the specific case should be delivered by an abdominal operation, pure surgery, or be relieved by an obstetric procedure. I do not believe this is a too altruistic position to assume. One of our national characters in surgery told me: "The man who has reached the age of forty, and poses as a surgeon, and has not come to the point where he may legitimately confine himself to the commonly accepted field of general surgery, but must encroach into eye and ear, throat, skin, venereal diseases, and obstetrics, has something wrong with his financial standing, or has something wrong with his mental complexes." The professor of obstetrics at Harvard states that since the general surgeon has gone into the field of the Cesareanists the Cesarean mortality in and about Boston has risen enormously—is now 25 to 100 per cent. in many quarters.

Again, let me repeat, I have not talked to the surgeon of the small town or city—but my words are directed to the surgeon of large cities: the latter should leave the obstetric problems to the obstetrician.

Dr. D. A. Horner, Chicago: Practically 20,000 to 25,000 women die every year from confinement. Is it because obstetrics is being practiced by those who are not obstetricians? If 20,000 to 25,000 women die it is undoubtedly the result of the terrific strain and mutilation they have to undergo in

this so-called natural process. There is no question in anyone's mind that the woman who is having an "easy labor" is really not having an easy time. Over 100,000 are invalidated for the rest of their lives because of this strain and the man-handling that is necessary to relieve them.

Is it not true that we are at the present time in an evolutionary stage in obstetrics, just as the surgeon was in an evolutionary stage not so long ago in his appendectomy and laparotomy? He feared these operations because of their high mortality. This inflammation of the bowels was a terrible thing. Today the operation is simple and the mortality rate low because the operators are trained to do this work.

Now Cesarean section is in exactly the same stage. We are going through a similar evolutionary stage. We are developing and perfecting and simplifying the operation. Cesarean sections, like other operations, are being done by those who should not do them, thereby disparaging the treatment employed because the patients die. Do these beginners decide the value of operation?

Dr. Fitzpatrick made the statement that some of the men who did Cesareans in Massachusetts had done such operations only three or four times before and gave figures to show how many had done their first. We have all done it a first time. The man who does this operation should not be criticised any more than the man who does his first appendectomy. If he is honest in his indication he deserves credit even though he loses his patient.

Most of the difficult obstetrical operations occur in contracted pelves, although DeLee says that 75 per cent. deliver themselves spontaneously. With these difficult operations women are lacerated, infected, bleed to death. Looking back into the past any one of us can visualize patients who would have been far better off with Cesarean sections than with the method originally pursued.

In Dr. Bacon's paper, which I enjoyed very much, he mentioned that he leaves gauze in the uterus and very often sends the patient home with it without any due alarm. Potter of Buffalo does the same. I have seen him take packing out of the uterus on the twelfth day in a case without fever.

It is my impression that the surgeon will not leave packing in the abdomen for longer than three or four days at the most; the tendency is to shorten the time. Is there a logical reason for packing to remain in the uterus drawing up infection from the vagina for longer than a day? Half that time is better because the blood and serum retained in the meshes of the gauze are perfect culture media and encourage development retention and spread of organisms and are better out of the uterus.

Dr. J. H. Bacon, Peoria (closing the discussion): I knew this paper would raise this form of criticism from some and words of commendation from others. I know I am in good company when Harvard's teachers of obstetrics report one Cesarean

section out of every twelve obstetrical cases while mine will not average one out of forty. My mortality is not one out of twelve but one out of thirty. One of the men who sends me many of these cases possibly sees one hundred obstetrical cases but will not average more than two or three of these a year. Many cases come from the country and you would be surprised at the number that have been in labor for twenty hours or longer. I believe that of the total I am averaging less than one per cent. so can not be considered a radical. However, I have some radical blood in my veins.

I have not considered turning the uterus inside out as a traumatic affair. At this stage the uterus is very flabby and no force is necessary. It is done very rapidly and makes possible the removal of any shreds of placenta with a dry towel.

I never have left the gauze pack in the uterus over six days. We have had cases come that have had gauze left in for months without deleterious effect, but would not advise it.

As the last speaker has said, we are in a transition period regarding Cesarean section. We have not exactly found our limits. I cannot say what another man should do in these borderline cases. I have tried to meet my problems as they arose and have just given you the results. We see cases of pregnant women who have been in automobile accidents with from rupture of the bladder to fracture of the lateral processes in the back. What are you going to do with them? Our books on obstetrics do not tell.

Years ago I had a case with an exostosis of one of the pelvic bones. She delivered quite normally. The child had a furrow on one side of its head. I was called back in a few hours because the child was not breathing properly. I opened the skull and found a large subdural hemorrhage. The child died. What would you do with that woman when she again comes to labor?

You have to be very careful what you teach young men. However, there are many indications that I believe will be best met by Cesarean section which have not been taught us in the past which I do not consider as radical treatment. For a while we will each be trying out our own method, as Dr. DeLee is his, and a composite practice will develop. In gall bladder surgery a few years ago it was cholecystectomy vs. cholecystostomy, and now we can do either as the case needs without shame.

I do not believe that Cesarean section is a simple operation as some would lead us to believe. There are two lives to be considered and their demands are often at variance. I do not believe that because a woman is having a little trouble and demands it, she should necessarily be gratified. We must meet justifiable needs, but we must be careful and not go beyond. I have a case in the hospital now who is a case in point. She was removed to hospital after rupture of membranes and in labor (a multipara, age 32). After 24 hours of labor she was given morphia gr. one-quarter for

needed rest one evening. Early next morning, after night of hard labor, the nurse called physician on account of the exhaustion of the patient. Here we had three distinct contra indications—a long dry labor with three vaginal examinations. A woman in extreme exhaustion after 36 hours of labor with head not engaged and the child's condition not good. You say a mistake had been made. But I am facing a condition. I told husband of the seriousness of the condition but selected the section. We now have a healthy babe, a mother in good condition but has an infected abdominal wound still draining eighteen days after the operation. What did I have left to do, feeling that high forceps would kill the woman in her condition. Not good results, but passable.

A NEW APPLICATOR FOR THE RADIUM TREATMENT OF CERVICAL CANCER*

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The statistics of Regaud (Associate of Mme. Curie), Director of the Radium Institute of the University of Paris, who has, perhaps, the largest supply of radium in the world at his command (9500 mgs.), are among the best that have been published from a large radiologic clinic. He claims 49.3% of patients, suffering from *all stages* of carcinoma of the cervix (90% have doubtful operable or inoperable growths when first seen) are free from clinical evidence of the disease, one year after radiation treatment with a 26.2% five year salvage.

Regaud enjoys the confidence of the radiologic profession and is generally recognized as one of the foremost authorities today in radiation therapy. It is quite natural, therefore, that we should further investigate the excellent results that he and his associates have been able to obtain in treating cervical malignancy.

The adaptation of the French methods of administering radium in carcinoma of the cervix by an increasing number of American radium therapists, is quite evident. The French school uses comparatively small amounts of radium over a long period of time, from heavily filtered, multiple centers.¹ This is accomplished by three sets of applicators—one that fits in the

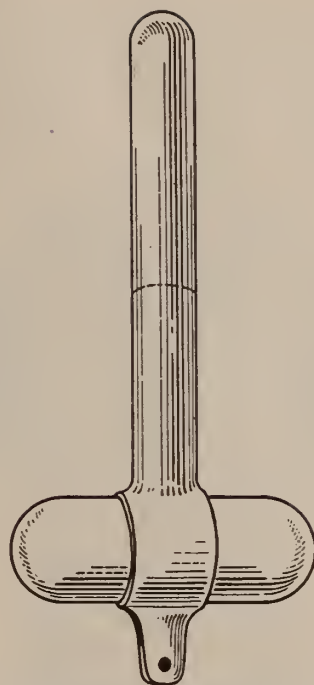


Fig. 1. The new uterine applicator, assembled to fit the average uterine canal, actual size.

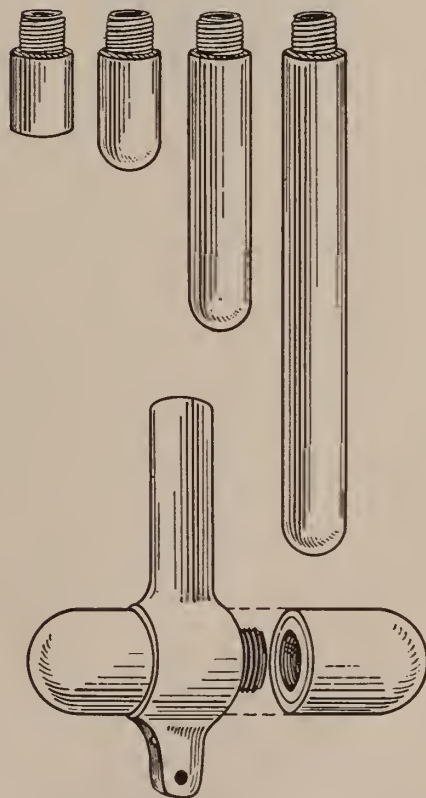


Fig. 2. The individual parts of the new uterine applicator, actual size. The applicator may be assembled to fit any uterine canal from 4.5 to 10.5 cm. in length.

*Read before the Section on Radiology, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

uterine canal, one that fits against the cervix, and another, called a "colpostat," that is fitted into the lateral vaginal fornices. I have attempted to simplify this technic by combining the first two mentioned applicators; thereby using two

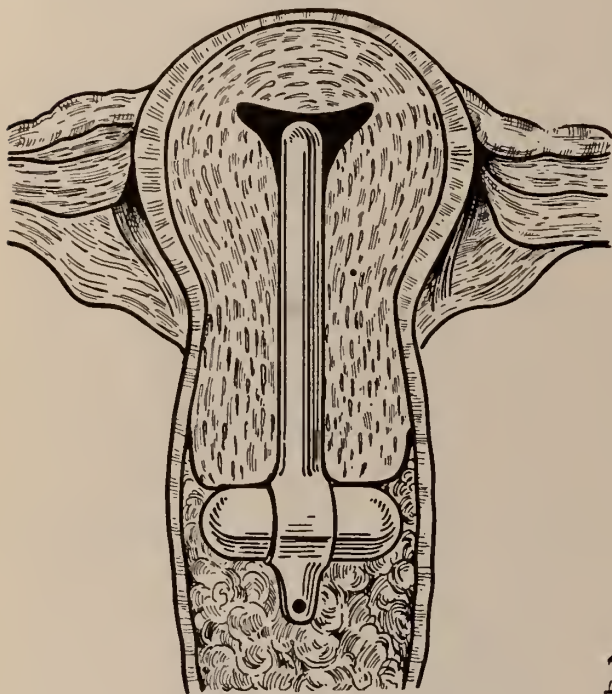


Fig. 3. The new applicator in position in the uterus.

instead of three. This has been accomplished by a modification of the John G. Clark cervical applicator used in treating carcinoma of the cervix.² The Clark applicator is a T shaped applicator composed of 1 mm. of brass throughout, and covered with 0.5 mm. of aluminum. With this device, radium is introduced into the cervical canal and also placed against the vaginal portion of the cervix. The length of the cervical portion is about 3 cm.

The applicator that I have devised consists of 22 karat gold of special alloy throughout. The walls of the uterine portion are 1.75 mm. of gold covered with 0.5 mm. of aluminum, and the cervical portion 3.5 mm. of gold covered with 1 mm. of aluminum. The uterine portion consists of a number of graduated sections, so that an applicator can be assembled for uterine canal measurements of from 4.5 to 10.5 cm. in length. The gold used has an approximate density of 18.4, providing thickness to the uterine portion, which gives a filtration equivalent to 1.5 mm. of pure platinum. The outside diameter of the uterine portion is 8 mm., which can be readily

covered with one or more thicknesses of Para rubber. For the average sized uterus, three radium needles can easily be placed in tandem in the uterine portion and one or more needles in the vaginal portion.

That the applicator may be properly constructed to conform to each individual case (insuring the success of the Regaud technic), the length of the uterine canal should be first determined by means of a sound. The applicator can then be readily introduced by uterine dressing forceps or special forceps, a slot in the vaginal portion being provided for this purpose.

An ideal manner of using the applicator in treating cervical cancer is its use in conjunction with the colpostat devised by Kaplan.³ In this manner, six radioactive centers are supplied, all heavily filtered, and the technic, so successfully carried out by Regaud, can readily be administered.

The advantages of this applicator are:

1. It provides a single instrument for irradi-

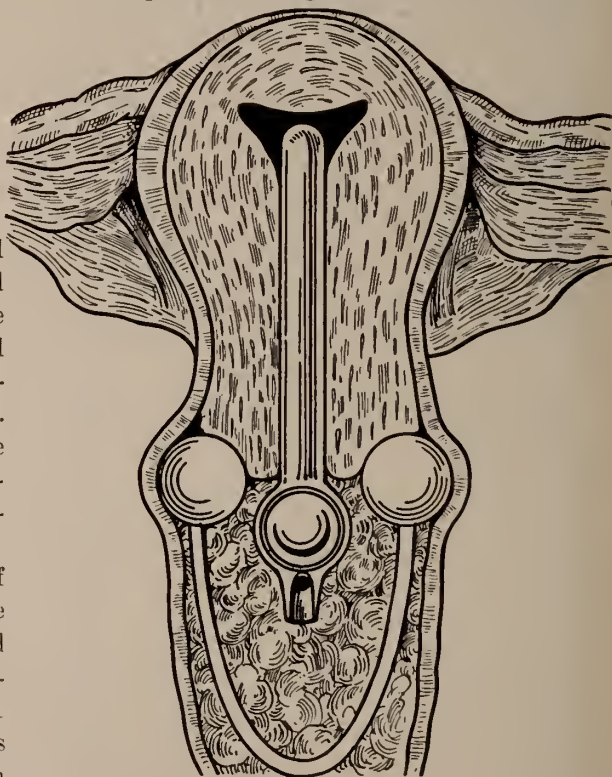


Fig. 4. The new applicator in position in the uterus with the Kaplan colpostat in the vagina. This arrangement is an ideal one for treating cervical cancer.

ating the entire uterine canal as well as the vaginal portion of the cervix.

2. It is adjustable, so that uterine canals of

various lengths may be irradiated. (The Regaud technic necessitates irradiating the entire uterine canal.)

3. It offers heavy filtration, which is twice as great in the vagina as in the uterine canal, thus protecting the sensitive vaginal mucosa (another requisite of the Regaud technic).

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DISCUSSION

Dr. Henry Schmitz, Chicago: Anything that is done for the development or evolution of radiation therapy should be carefully studied and received with thanks to the originator. Therefore I extend to Dr. Swanberg my heartiest congratulations for the improvement of the Regaud technique of radiation therapy in carcinoma of the cervix.

In a more or less crude way these methods have all been carried on before. I wish to mention Clark's modification of the mercury bomb used by Bailey, and finally the lead bomb prepared six or eight years ago for use in the cervix. Whatever change was made in the technique was always discarded for the simple technique of intrauterine radiations of 50 mg. radium element which we employed in the beginning of our work in 1913. I happen to have one of the capsules with me—a straight brass capsule which can hold two 25 milligram capsules. This simple technique has given the same good five-year end results as reported by other clinics with a more complicated technique.

We have 470 cases of carcinomas of the cervix which had been treated up to five years ago. In these 470 cases the five years perfect healings of the cervix with perfectly normal anatomic conditions based on all cases admitted was 21 per cent. If we exclude the patients which did not return for re-examinations and hence could not be followed up, then the five-year good end results were 32 per cent.

Similar statistics have been published by Kelly of Baltimore, by Ward of New York and Heyman of Stockholm.

We therefore have in our own country a large number of five-year cases treated with radium and x-ray with results comparing favorably with those treated by Regaud.

We use a technique of combined radium and x-rays. The x-ray therapy went through a period of evolution like everything else in medicine. Up to 1920 we used the so-called small field method, with which the most of us are probably still most familiar, in which

we used a large number of small fields, light filters and short distances. In 1921 we used a technique consisting of 140 kilovoltage peak, large fields and long distance. Since 1922 we use the newer technique with 200 kilovolts current, long focus distance and heavy filter.

Comparing the five-year end results of these three periods, we find we had 14 per cent. of five year good end results in the first period; 18 per cent. in the second period, and 22 per cent. in the third period. In other words, there is no doubt that the improved x-ray technique will give better results since the radium dose was always the same.

The principle in radiation therapy is the penetration of the radiation field with homogeneous ray intensities and this can be best assured by a central radiation focus met from a peripheral radiation zone.

Dr. G. E. Pfahler, Philadelphia: Mr. Chairman, I want to congratulate Dr. Swanberg on the preparation of this new applicator. I especially think that he is accomplishing a great deal by planning to radiate the entire uterine canal. I think that is the chief advantage of the applicator.

About three years ago I described an applicator consisting of a millimeter of platinum, shaped like a uterine sound. It seems to me that that has some advantage over the use of a straight applicator in being put into the uterus. This applicator is made of a millimeter of platinum covered with a half millimeter of hard rubber. I am inclined to think that probably two millimeters of platinum would be even better. I think that the higher filtration is a very important matter and it is only a matter of us getting acquainted with its value.

The radiation by the applicator in the uterus and the three applicators in the vagina or the three points of radiation from the vagina, as you will see by the diagram which Dr. Swanberg threw on the screen, makes the cross-fire radiation on the posterior wall of the bladder rather heavy, and while that may be necessary, I am inclined to think that we ought to choose it according to the needs of the particular case.

And that brings me to the very important point in the discussion of any case of treatment of carcinoma that we must not treat them according to rule but adapt our treatment according to the disease that is present and its location.

Dr. Swanberg: I agree with Dr. Pfahler that a curved applicator would be somewhat more advantageous. The only trouble with curving an applicator is that it is a difficult thing to do from a mechanical standpoint. The first applicator we had constructed was curved, but when we tried to introduce needles twenty-seven millimeters in length into the curved canal we had trouble.

In taking up the matter of a curved applicator with a number of gynecologists, they expressed themselves that in the majority of cases a straight applicator would be found sufficiently serviceable,

INDICATIONS FOR BLOOD CHEMISTRY*

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The pathologist is a buffer between patients and doctors and between different doctors. He hears all the complaints and criticisms and learns the shortcomings of the various physicians in his community. Perhaps the most common mistake is the failure of many general practitioners to make use of blood chemistry and other laboratory tests. When one sees a patient sent in to the hospital for heart trouble when she has diabetes, because of a failure to make urine and blood examinations, and another patient diagnosed as gall bladder disease, when he has pernicious anemia, for the same errors of omission, and perhaps these patients have gone from one doctor to another without obtaining relief, need one wonder why patients drift to the cults and quacks? Yet, on the other hand, I do not believe in the other extreme of asking the laboratory to make your diagnosis for you, but there is a happy medium. Let the laboratory help you make your diagnosis, let it verify your diagnosis, and then aid you in prognosis and treatment. Only in this way are you practicing scientific medicine and only in this way can you keep your patients. As I have not seen any published summary of the indications for the use of blood chemistry, I have collected from the literature what I think are the outstanding points. In this paper on blood chemistry, I want to emphasize especially the most important indications for its use and also some of the most recent work on the subject.

One of the important constituents of the blood is *sugar*. In health, in the morning before breakfast, the blood contains around 100 mg. per 100 c.c.; 90 to 120 mg. being the most widely accepted limits. When a normal person is given approximately 100 gms. of glucose, there is a sharp rise of blood sugar to 150 or 160 mg. in one-half to one hour, and a gradual return to normal by the end of the second hour. Sugar does not appear in the urine. This is called the "Sugar Tolerance Test." A higher rise or a slower return to normal sometimes with sugar in

the urine occurs in several pathological conditions. Characteristic tolerance curves are obtained in: diabetes mellitus, the pre-diabetic state, hypo- and hyper-thyroidism, hypo- and hyper-pituitarism, chronic nephritis, Addison's disease, and renal glycosuria. In the last condition, sometimes called renal diabetes, there is sugar in the urine without an increase in blood sugar. In regard to the pre-diabetic condition—where a patient may have sugar in the urine at various times or where a blood sugar is present in the upper limits of normal—Dr. H. J. John¹ says, "The establishment of a final diagnosis in early and border line cases of diabetes is often very difficult. Therefore, it is important to understand what measures are essential in doubtful cases and why dependence cannot be placed on urine examinations alone, or even on a single fasting blood sugar. The point to be established is the ability of the patient to utilize carbohydrates—it follows therefore, that a progressive study of the blood sugar content—the establishment of the glucose tolerance curve—is the only method by which this ability of the patient to utilize carbohydrates can be established with certainty. This curve discloses whether the patient may be liable to develop diabetes and thus becomes a valuable prophylactic guide."

In the treatment of diabetes, especially if insulin is used, it becomes absolutely necessary to have recourse to frequent blood sugar determinations.

Hypo-glycemia, a lowered blood sugar, occurs in the following conditions: Insulin poisoning. Addison's disease, phosphorous poisoning, cyclic vomiting of children, and sometimes following operations for exophthalmic goiter. In regard to the later condition, E. F. Holman² says, "It is generally conceded that manipulation of the thyroid gland in an operation for severe thyroid intoxication results in flooding the general circulation with considerable thyroid secretion. This calls for a tremendous increase of the metabolic processes of the body with the utilization of all available carbohydrates. There will come a time when the available carbohydrate supply in the body will become exhausted and hypo-glycemia supervenes." In a study of the blood during a severe post-operative reaction in three cases, this author found the blood sugar dropped to less than 1 gram per 100 c. c. within 24 hours. The

*Read before the Section on Medicine, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

patients were semi-comatose, and their condition critical. He gave them a solution of glucose; a startling improvement in their condition took place almost immediately.

We have also noticed at the Decatur and Macon County Hospital in patients with severe infections, such as, pneumonia, septicemia, etc., that when their blood sugar is low, but still within normal limits, between 70 to 90 mg., the patients are irrational and in a poor general condition, but when glucose is given intravenously there is marked improvement.

Hyper-glycemia occurs in diabetes mellitus, and may occur in hyper-thyroidism, hyper-pituitarism, hyper-adrenalism, cerebral hemorrhage, psychosis with cardio-renal disease and general paresis.

The *nitrogenous constituents* of the blood are also very important as a knowledge of their amounts gives one an idea of kidney function, and thus serves greatly in the diagnosis, prognosis, and treatment of kidney diseases. The normal values are as follows: Urea nitrogen 10 to 23; non-protein nitrogen 22 to 30; creatinine, 1 to 2, mg. per 100 c. c. The amount of kidney function, or expressed in another way, the amount of kidney damage, should be known for the intelligent treatment of all diseases of the genito-urinary organs. It cannot be too strongly emphasized that a marked rise in the N. P. N., urea, or creatinine renders a patient a poor operative risk and this condition should be overcome by diet and other forms of treatment before an operation is attempted in all cases in which a delay is permissible. Careful pre-operative preparation of the patients will lower the mortality in operations for kidney stones, hypertrophy of the prostate, etc., to a very low figure. Also, the blood chemistry should be known for patients who are over 35 or 40 years old, because they are in the cardio-renal disease age, for patients who have heart or arterial disease, or high blood pressure; for those who have albumin, casts, or other abnormal changes in the urine; for successful treatment, especially before operations are done.

To know the amounts of the nitrogenous constituents of the blood is of value for diagnosis, prognosis, or treatment in the following conditions: uremia, all types of nephritis, arteriosclerosis, pyelonephritis, kidney stones, hydro-

and pyo-nephrosis, tumors of the kidney, tumors and hypertrophy of the prostate, chronic lead poisoning, intestinal obstruction, pneumonia, acute yellow atrophy, and bi-chloride poisoning, in all of which there are usually higher figures than normal.

In a paper by Tileston and Comfort³ in the "Archives of Internal Medicine," the following statements are made: "The estimation of the N. P. N. is of the greatest value in the diagnosis of uremia. Amounts of 100 mg. or over were encountered in only two conditions besides uremia, namely: acute intestinal obstruction, and profound anemia with hemolysis."

"The determination of the N. P. N. is a great aid in prognosis of chronic nephritis. Patients showing over 100 mg., with one exception, did not live over thirty-five days."

"The results of blood analyses furnish the best guide as to the diet to be given in nephritis. Cases with high values require restriction of protein and those with normal values do not call for any marked decrease."

"In chronic passive congestion of the kidneys there is slight or no retention of nitrogenous waste products."

"In pyelitis the presence of azotemia, increased nitrogenous elements in the blood, probably indicates involvement of the parenchymatous cells of the kidney."

"A marked elevation of the N. P. N. or urea renders the patient a poor operative risk and the azotemia should be overcome if possible before operation. In hypertrophy of the prostate, for example, a low protein diet may be combined with drainage of the bladder as a preliminary to operation."

"Chronic lead poisoning was accompanied by retention."

"The eclampsia of pregnancy seldom shows a marked increase in the N. P. N. and urea. Analysis of the blood will differentiate between uremia and eclampsia."

"Syphilis showed a considerable degree of retention in 36% of the cases examined evident in all stages of the disease."

Myers and Killian⁴ in the "American Journal of the Medical Sciences," point out that the creatinine in the blood is a more reliable index of the decrease in the kidney function than urea. They say that any values for creatinine above

one or two mg. indicate pathology, figures from three to five are decidedly unfavorable, while figures above five mg. almost always indicate an early fatal termination.

Feinblatt⁵ gives a report of 1500 blood analyses; in 43 of these cases the creatinine exceeded 2.5 mg.; 40 of these were diagnosed glomerular nephritis and 3 were anuric. Fourteen patients with figures of 10 mg. or over died within 17 days; average 4 days. Of 15 patients with figures from 5 to 10, 11 were dead within 17 days, average 6 days; and 4 others died later. Of 21 patients with readings from $2\frac{1}{2}$ to 5 mg., 16 were dead when the investigation was made. If retention be of sudden onset and due to a remediable cause, as ureteral calculus or hypertrophy of the prostate, recovery may be expected with removal of the difficulty, but other causes give a very serious prognosis.

The differential diagnosis between intra-cerebral hemorrhage and uremia can be made on the blood findings, as there is great increase in nitrogenous elements in uremia and no increase or only slight in hemorrhage.

An increase in both N. P. N. and sugar may occur in psychosis with cardio-renal disease and in general paresis.

If patients have a high N. P. N. they are unsuited for the operation of thyroidectomy.

Williams and Stander⁹ writing on the toxemias of pregnancy report the results of blood chemistry tests as follows:

1. Normal Non-pregnant women—N. P. N. 30-35; Uric acid 2.0-3.5; Urea N. 13.4; Sugar 70-100; Lactic acid 20-35; Inorg. P. 1.5-3.0; Carbon dioxide 55-65;

2. Normal pregnant women—N. P. N. 25-30; Uric acid 2.0-3.5; Urea N. 13.3; Sugar 70-100; Lactic acid 20-35; Inorg. P. 1.5-3.0; Carbon dioxide 40-50;

3. Nephritic toxemia—N. P. N. 35-100; Uric acid 3.5-9.0; Urea N. 13.0; Sugar 10-100; Lactic acid 35-80; Inorg. P. 1.5-3.5; Carbon dioxide 40-50;

4. Eclampsia—N. P. N. 25-35; Uric acid 4.0-12.0; Urea N. 13.4; Sugar 120-185; Lactic acid 50-200; Inorg. P. 2.5-3.5; Carbon dioxide 15-55.

The above authors gave their routine treatment of eclampsia of the severe form as follows: a specimen of blood is obtained and the sugar and

carbon dioxide values determined. If there is an undue rise in blood sugar and decrease of carbon dioxide combining power, from 15 to 25 units of insulin are given. The insulin is usually buffered with about two grams of glucose per unit, but the amount of glucose varies with the hyperglycemia.

Uric Acid is another constituent of the blood; the normal figure is 1 to 3 mg. per 100 c. c. of blood. This is increased in gout, lead and mercury poisoning, in some cases of malignancy, acute infections, especially pneumonia, in leukemia and in chronic interstitial (not parenchymatous) nephritis. In very early stages of interstitial nephritis before any concentration in the blood of urea or creatinine can be demonstrated, that of uric acid may be very definite which makes this an early diagnostic sign of this disease. In gout the uric acid is invariably increased, ranging from $3\frac{1}{2}$ to 9 mg.

Acidosis is another very important subject to consider; where the carbon dioxide combining power is lowered or the H-ion concentration changed. The normal carbon dioxide combining power is 80 to 53. To know the amount of acidosis is of value in diabetes, to watch for approaching coma or to diagnose the degree of coma; in pregnancy, to watch for toxemia and vomiting, so that insulin and glucose may be used to prevent or treat the toxemia; and in many post-operative cases where acidosis may develop.

We have been using the bacteriophage with quite successful results in the treatment of chronic infections of the genito-urinary tract, which are due to the colon bacillus, and we find that the bacteriophage acts somewhat better when the patient is kept alkalinized.

Alkalosis, on the other hand, may occur where alkalis are given in treatment, as in gastric ulcer. With alkalosis there is a marked rise in the carbon dioxide and calcium without change in the chlorides of the blood.

Cholesterin might be used in the study of certain diseases. It is higher than normal (.15%) in hypo-thyroidism, nephrosis, diabetes mellitus, pregnancy, the menopause, xanthoma; and lower than normal in hyper-thyroidism, anemias, old age, tabes, and beginning of the acute infectious diseases.

M. Barbarezy⁶ concludes in his study of cho-

lelithiasis: "(1) the cholesterin content of the blood is normal between attacks, (2) immediately after an attack the cholesterin rises (.20 to .30%) and remains high for about a week, (3) this rise is so constant that it may serve in a differential diagnosis, for in nephrolithiasis, appendicitis, and gastric crisis, the cholesterin is normal; while in gastric ulcer it is greatly diminished."

Epstein and Lande⁷ state that in nephrosis, basal metabolic readings and cholesterin determinations should prove of value in differentiating cases which are suitable for high protein feeding, and thyroid therapy.

The chemistry of *Calcium* and *Phosphorus* must also be mentioned as they are important in rickets and other diseases. The normal calcium is 9 to 11; phosphorous 4.5 to 7 mg. per 100 c. c. Hess⁸ shows that the product of the two must be between 30 or 40 for calcification of bones to occur. In the normal child the product is from 50 to 60. When the product falls below 30, rickets is always present; between 30 and 40, rickets is usually present. All cases of rickets with a product less than 30 are active, but more than 30 are in the healing zone. In tetany the calcium content is lowered, while phosphorus is the deficient element in rickets.

Macomber presented a paper at the A. M. A. convention, 1926, in Dallas, Texas, where he showed that marked disturbances in pregnancy arise from low calcium and that it might be a cause of intrauterine mortality. There is also some connection between eclampsia and calcium and phosphorus.

In whooping cough the calcium may be lowered. Calcium is decreased in some forms of tetany, but not in all.

This paper must not overlook one of the newer discoveries and that is the determination of bilirubin in the blood and its significance. Normally, bile pigment is present in the blood serum in minute amounts (.5 mg. per 100 c. c.) and this must be increased 8 to 9 times and continue for some time before the tissues become jaundiced and the kidneys excrete bile. There is often, therefore, a stage of latent jaundice where there is an increase of bile pigment in the blood serum without a visible deposit in the skin and mucous membranes. Latent jaundice may occur

in pernicious anemia, catarrhal jaundice, splenomegaly, acute endocarditis. The reading of the colorimeter in making the test is divided into the standard and this is called the icterus index. The normal index varies between 4 and 7; between 7 and 15 is the zone of latent icterus, and above 16 frank jaundice occurs. This test is of considerable diagnostic and therapeutic value. It is high in pernicious anemia, low in secondary anemia; high in duodenal ulcer, low in gastric ulcer. In hepatic conditions it serves to indicate the extent of impairment in biliary function and also response to treatment. Thus, in jaundice with a high index, decrease denotes improvement before changes in the color of the skin are detectable. There is a high index in cholecystitis, cholelithiasis, hepatic cirrhosis, marked in biliary types, moderate in the portal and cardiac types; and in malignancy of the liver. There may be latent jaundice in pregnancy. This test can also be used in differentiating between the jaundice of obstruction and that of hemolysis. Of many reports I have seen recently upon liver function tests, all agree that the icteric index is a test of great value.

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DISCUSSION

DR. E. J. STIEGLITZ, Chicago: I want to thank Dr. Smith on behalf of the group for this excellent paper, especially his emphasis on the importance of accurate diagnosis. In that connection, I'd like to add that blood chemistry is not always an aid to accurate diagnosis and sometimes it may be definitely misleading. There are several sources of error which I think should be pointed out.

First of all, that the datum is determined by an instantaneous reading, a snap shot. A snap shot

of this room would give us an entirely different picture than a moving picture taken of the meeting. A snap shot wouldn't contain the information that a movie would. It is momentary. Conditions in the blood may vary very greatly over even a short period of time.

A specific example of that may be illustrated in the carbon dioxide concentration, the alkali reserve. One instance of this is in a case of diabetic in coma. At seven o'clock the volume per cent. of carbon dioxide absorbable was 7.9. At ten in the morning it was 30. At four p. m. it was 50. At six in the evening, 14. At 7 in the evening undeterminable because the patient was dead. There was a very rapid fluctuation from below 10 to 50 in the course of less than twelve hours. Therefore a single reading would be practically valueless other than in a gross sense, not in an accurate quantitative sense.

Secondly, data obtained by blood chemistry are in percentages—so many milligrams of this, that or the other thing—per hundred c.c. It would be absurd to speak of percentages of glycosuria, so many grams per cent. in the urine. We want to know how many grams for twenty-four hours. There is no accurate evidence that the volume of the blood is necessarily constant. Although the percentages apparently are constant in the normal in the various constituents of blood which we may analyze, that does not say that the total amount is necessarily constant.

For example, in blood chlorides, spontaneous and perfectly normal variations occur somewhere between four and five hundred and fifty milligrams. It leaves a large margin to interpretation.

A third source of error in the interpretation is that the blood findings are not necessarily a significant thing. Blood is only part of the body. Sometimes very much more important are chemical changes in the tissues in contrast with the blood. Recent work has demonstrated that although the hydrogen ion concentration in the blood may occur constant, very gross changes may occur in tissues adjacent; for instance, the kidneys. One may misinterpret the significance of these results.

Andrews and Thomas's recent work on mechanism of uremia has shown that not the total amount of calcium, potassium and sodium is not so significant but the relative ratio of proportion between the two is of greatest importance.

The chief value of blood chemistry to my mind is in assisting in prognosis, the contrast of the reading today and a reading a month or a week hence, whether it's going up higher or down—not a single reading.

I want to emphasize just one more point and that is the diagnosis should be made at the bedside. Laboratories may be of assistance, but to make the diagnosis from a printed report in a laboratory is quite unjustified. It is done in many clinics, some of the biggest clinics in the country diagnose on paper. It is the patient that is sick,

it is the patient that has the disease and not the disease that has the patient.

DR. M. EARL BRENNAN, East St. Louis: In regard to increase in nitrogenous products of the blood indicating kidney damage in chronic lead poisoning as a diagnostic aid, I did not quite get what the increases were. I would like to ask Dr. Smith what to expect.

I handle a good bit of acute and chronic lead and I do not as a routine run any blood chemistry for nitrogenous products. I do not find, clinically, indications indicating that type of laboratory work.

I would also like to ask Dr. Smith what and how much of an indicator has he found urinalysis in chronic lead poisoning to indicate kidney damage. I find that the urine is notoriously negative to indicate kidney damage that you would expect from the history and the clinical findings.

DR. C. R. SMITH: It is true that blood chemistry tests as well as other laboratory tests are inaccurate at certain times and have to be interpreted intelligently to obtain the best results. You can't just take one test and say that is sufficient. There is no one hundred per cent. in medicine and there is no person who runs a constant figure. We have to rely on averages.

For instance, I might run seventy-five milligrams of blood sugar. You might run a hundred and thirty milligrams of blood sugar. Seventy-five milligrams of blood sugar might be low for you; one hundred thirty would be high for me. We do not know a patient's normal, therefore we cannot rely on a certain definite figure.

It is better, as Dr. Stieglitz said, to take different readings and not rely on one. It is also true, as was said, that the diagnosis should be done at the bedside. As I emphasized, a lot of doctors are relying on the laboratory to make the diagnosis, which I don't think they should do. Just let the laboratory aid you in making your diagnosis, prognosis and treatment. It will give you a lot of aid.

In regard to chronic lead poisoning, as I have had no very extensive personal experience, I cannot say much about it. I was mainly quoting from the literature in that regard.

I want to bring one more thought to your attention. That is, consider the psychology of your patient. If you are sick, what do you do? You go to St. Louis or Chicago or to the Mayo Clinic. Your patient should have and expects the best attention that you can give him and the best attention is scientific treatment. A patient is not getting scientific treatment unless he is getting the value of laboratory tests, especially blood chemical tests.

There are many patients going from doctor to doctor with undiagnosed conditions, or conditions treated very poorly, because of the lack of diagnosis and the lack of proper scientific treatment.

RADIOLOGICAL STUDIES OF THE ANATOMICAL VARIATIONS OBSERVED IN THE SYMPTOMLESS SPINE*

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This report includes the anomalies, developmental abnormalities, postural changes and evidences of previous injury in 916 men with symptomless spines who applied for positions as switchmen and firemen on the Belt Railroad, Chicago, Illinois. All of these men had passed a rigid preliminary physical examination with no visible anatomical variations or disturbances in function.

We have been surprised at the frequency with which these abnormalities occur in the symptomless spine. It was very difficult at first to differentiate the normal from the abnormal. George has fashioned what he calls a normal vertebra by making a composite of between 70 and 100 vertebrae, thereby establishing an average. In comparing our series with this average we found many that approximate it though none were identical. In our series of 916 cases anomalies and variations occurred 593 times, many of the cases having two or more anomalies, one case having four. The total number of cases showing variations numbered 405 or approximately 45%. By far the greater number were found in the lumbo-sacral region with few variations in the dorsal and cervical regions. For our purposes we have classified the abnormalities and anomalies into the following divisions:

1. Congenital anomalies:
 - (a) Supernumerary ribs.
 - (b) Supernumerary vertebrae.
 - (c) Malformations of the vertebrae or their transverse processes.
2. Proliferative changes:
 - (a) Chronological or postural changes.
 - (b) Changes due to injury in which fracture is not present.
 - (c) Marie Strumple type of spine.
3. Injuries:
 - (a) Fractures of the body.
 - (b) Fractures of the lamina.
 - (c) Fractures of the transverse processes.
 - (d) Fractures of the spinous processes.
 - (e) Dislocations and spondylolisthesis.

Of the congenital anomalies, spina bifida occulta was the most frequent variation encountered. This occurred 156 times in the 916

cases and varied from a mere line through the spinous process of the 5th lumbar or 1st sacral segment to complete absence of the spine and arch of the 5th and all of the sacral segments. Supernumerary ribs occurred in 83 cases; eighty attached to the first lumbar vertebrae on one or both sides and 3 attached to the 7th cervical. Sacralization of the transverse processes of the 5th lumbar followed with 49 cases. The degree of sacralization varied from mere impaction of the transverse process upon the wing of the sacrum with the formation of a bursa on one side only to complete fusion of both transverse processes of the 5th lumbar with the wings of the sacrum. Supernumerary vertebrae or the absence of one or more vertebral segments occurred in 46 cases. These cases did not include those in which the number was increased by the withdrawal of one sacral segment or decreased by the union of the last lumbar with the sacrum. In all these cases the number of vertebrae in the other regions of the vertebral column was normal. Such an arrangement presupposes faulty segmentation of the column. Deformities of the coccyx, incomplete union of the 1st and 2nd sacral segments, deformity of the transverse process, deformity of the sacrum, incomplete union of the lamina and articular process follow in the order given.

Scoliosis occurred in 80 cases. This was found in both the dorsal and lumbar regions and was so common that we feel it was due to habit or occupation except where due to congenital deformity of the body of the vertebrae or sacrum which occurred in 7 cases. Proliferative changes occurred in 61 cases. With a few exceptions these cases were nearing, or had already passed, the age of 40. When occurring at, or after, the age of 40 we feel that these are chronological or postural changes. When found earlier in life these changes probably represent the effects of infection or injury not active at this time. Kummel's disease and the Marie-Strumple type of spine have not been encountered in this series of symptomless spines as these conditions usually produce symptoms or at least limited function.

Fractured ribs occurred in 15 cases. While these have no definite connection with anomalies and injuries to the spine yet they have an important bearing upon this subject as will be pointed out by Dr. Bohart. Old fractures of the vertebrae and pelvis occurred in 4 cases, each

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without symptoms and the patient having denied previous injury. Spondylolisthesis occurred in 3 cases. The displacement here was only slight as a marked spondylolisthesis would easily have been discovered by physical examination and eliminated from our series. Tuberculosis of the vertebrae was seen in one case. This appeared to be quiescent at the time of the examination as the patient was having no symptoms. No deformity was apparent upon physical examination as only a small part of the body of one vertebrae had been destroyed.

The following is a complete list of the changes and anomalies noted in our series.

Proliferative changes	61
Scoliosis	80
Sacralization	49
Spina Bifida	156
Variation in intervertebral disc.....	3
Cervical ribs	3
Lumbar ribs	80
Deformity of Coccyx.....	31
Incomplete union of 1st and 2nd sacral segments.....	21
Six lumbar vertebrae.....	25
Deformity of transverse process.....	14
11 dorsal —11 ribs.....	10
13 dorsal —13 ribs.....	5
Fractured ribs	15
Fractured pelvis	4
Tbc. of lungs.....	12
Fractured vertebrae	4
Four lumbar vertebrae.....	6
Incomplete union of lamina and articular process.....	2
Spondylolisthesis	3
Congenital deformity of body of vertebrae.....	3
Congenital deformity of sacrum.....	4
Exostosis of rib.....	1
Tbc. of vertebrae.....	1
Total variations	593
Total cases showing variations.....	405
Total congenital and developmental anomalies.....	496
Total number of cases.....	916

CONCLUSIONS

1. Anomalies of the vertebrae are very common.
 2. X-ray examination is the only means of determining the presence of anomalies or previous injuries to the vertebral column.
- 29 East Madison St.

SIGNIFICANCE OF THE ANATOMICAL VARIATIONS OF THE SYMPTOMLESS SPINE FROM THE SURGICAL AND INDUSTRIAL STANDPOINT*

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Anomalies and anatomical variations in the symptomless spine are of interest to the sur-

geons in any attempt to arrive at the true etiology any prognosis of back sprains and back injuries.

Since the advent of the Roentgen ray it is comparatively easy to locate anomalies and variations and on account of the frequent association with pain and disability it is wise to consider at least the incidence.

Sacralization of the transverse processes of the fifth lumbar vertebra has been receiving much attention from clinicians and Roentgenologists during the last few years, both in this country and abroad. I believe too much importance has been attached to the sacralized transverse process—more than its medical significance warrants. Yet, whenever lumbar pain is evidenced, search is very generally made for the sacralized transverse process. We have found a large number of sacralized transverse processes in the group of symptomless spines and the individuals in whom they were found must have been in that condition from early youth, with probably some growth of the process, perhaps, after ossification.

Just why this condition should cause pain after years of impingement—with or without the formation of a true joint is difficult to explain. However, we do know that bursae do appear in the neighborhood of these joints which may be a partial explanation.

The foremost investigators of this country, and those abroad as well, seem to be at variance as to the relationship of sacralized transverse processes and pain, either with or without back injury. Various opinions prevail: that sacralization produces an abnormal fixation which renders the part more susceptible to strains and subluxations; that unilateral sacralization may act as a fulcrum which exerts unusual tension with certain movements. It is pointed out that individuals who suffer injury when this anomaly is present form a group whose symptoms obstinately persist as compared with like injuries where no such anomaly is demonstratable. Operations have been devised for the removal of transverse processes which were sacralized but long periods of time were consumed before relief from symptoms were noticed. Statistics avail-

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able would lead one to believe that this condition is reversible, atavistic in fact. In the lower races sacralization of the 5th lumbar transverse process is extremely common—almost 45%. In certain types of monkeys the percentage is still higher. This would lead one to believe that this condition would then be found in our race in those people living a highly active life, and I believe this statement to be true.

It appears to us that a sacralization of a transverse process is an effort of nature to overcome a structurally weak spine at its base, to bolster up and strengthen a weak framework, so that the individual may do the work that his spine was not originally fitted for.

Supernumerary ribs are a very frequent occurrence in our series of spines. The narrow line, not always smooth and regular in outline, is mistaken very frequently for a fracture of the transverse process. In all of the lumbar vertebrae this anomaly occurs so frequently in our series, the distal end of the process assuming all sorts of angles and shapes, that we are led to believe that fracture of the process occurs but occasionally, and that one should be circumspect in diagnosing such a condition.

Arthritis of the spine, while not an anomaly, is of tremendous interest and importance when and wherever pseudo injury is complained of. There is so much confusion regarding symptomatology, pathology and Roentgenology in this particular disease that hardly any two students of the subject coincide. In those types of arthritis where there is "lipping" and spur formation we are dealing generally with chronologic age in conjunction with postural and occupational changes. Somewhere, sometime, there must have been irritative process to form new bone, not necessarily infective, perhaps.

As Skinner put it: "These spur formations upon the lumbar body which occur as age goes on, are productive changes resulting from the crystallization of the lines of force. These crusty formations at the vertebral margins are simply an effort on the part of nature to fix that portion of the spine so it can work harder and do more. It must have support."

Nevertheless, this class of cases with spur formation and lipping on the edges of the vertebrae form the most obstinate total of all back cases when injury is alleged.

James P. Kerby is of the opinion that all individuals of stocky build after 45 years of age show spur formation and that practically all, including the slender individual, will show spur formation after 55 yrs. of age. Spur formation is infrequent prior to 35 years of age, and we have encountered but few. However, our experience with the arthritics early in this series of spines was extremely bad—every one of them developing lumbago in some form within a few weeks after they went to work and upon the slightest excuse of injury. Just why lumbago, low back pain, develops more frequently in these cases than in other forms of arthritis we do not know. It is entirely possible that calcification of tendons attaching to these spurs occurs more frequently than we imagine.

Recently Howard P. Doub, Henry Ford Hospital, Detroit, has been able to visualize calcification of the ilio-lumbar ligaments on both sides of the vertebra in their entire length in a series of 17 cases. With the improvement in technique, films and experience, it is believable that before long many other calcified ligaments, tendons and tendon insertions may be brought to light. Can this be accomplished, I feel sure that many obscure lumbagos may be explained.

A very frequent anomaly seen is incomplete fusion of the lamina of the vertebra. This may occur anywhere from the cervical spine to the sacrum and may involve more than one vertebra, the sacral and lumbar regions more frequently. The cleft may be small, the spina bifida occulta or wide and associated with extension of the membranes and sometimes the cord. The size of the defect may not be in any proportion to the symptoms which may develop. Occasionally such symptoms as reflex disturbances, asymmetry of the muscles, disturbances of sphincter control and motor sensory manifestation, also incontinence as well as trophic ulcers are sometimes ascribed to this condition.

Goldthwait and Willis point out that when this anomaly occurs we have a potentially weak back because of the decreased bone attachments for the ligaments that strengthen and hold the vertebrae in position. Most cases of spina bifida occulta, however, are not accompanied by any clinical manifestations and the individual pursues the even tenor of his ways until a contusion or lumbar pain, and x-ray and a lawyer, produce

a chain of symptoms which are only alleviated by "greenback" plasters, after which prompt recovery is the rule.

Cervical rib is also a comparatively frequent anomaly. It is the proliferation or growth of the seventh cervical transverse process. It may be any length from the normal transverse process, or long enough to articulate with the first rib, or if short connected by cartilage to the first rib. The length of the rib has no significance as to the severity of the symptoms. Symptoms usually occur after traumatism or infection and appear after ossification is nearly or quite completed. If symptoms do exist, they usually subside with the removal of the rib. Back sprain, true back sprain, is a frequent industrial injury and is usually due to a ruptured muscle tendon or tendon sheath, sometimes accompanied with considerable hemorrhage which encysts under the dense fascia. It is extremely rare to observe any bone pathology in these cases and unless complicated by one or more of the various anomalies is easy of diagnosis. Occasionally one of the many tendon insertions is pulled loose with a small scale of bone attached. This condition is readily recognized and recovery usually takes place readily.

Sprains and contusions of the back, whether accompanied with bony pathology or one or more of the various anomalies mentioned, have of late become one of the chief liabilities of industry and are the source of enormous expense and loss of time in all parts of the country. A significant fact presents itself in a large majority of these cases, however, viz: That symptoms very generally persist as long as a hope for compensation exists, or is regularly paid, but disappear magically upon a lump sum settlement. This has happened so frequently in the last few years that some means of combating these pseudo spine injuries, without pathology, seem necessary. Two pertinent questions have presented:

1. Do persons with anomalies of the spine suffer injury of the spine oftener than those with normal spines?
2. Granted that persons who are injured have anomalies of the spine—does it take a longer period of time for these persons to make a complete recovery?

During the last 21½ years we have been x-ray-ing the entire spinal column of all applicants for

positions on the Belt Railway Company of Chicago. The Belt Railway Company of Chicago is a switching proposition, operating 22 miles of main line in Chicago and 400 miles of switch track. It owns and operates the largest and highest hump in the United States, which is situated in the middle of a yard 5½ miles long. Cars are switched over this hump both ways and the switches are electrically operated from a central tower. This yard operates 24 hours every day. They handle over this hump, from three to five thousand cars in every twenty-four hours. The Belt Railway employs 550 switchmen and 88 engines upon the property. Cars are switched over the hump at very high velocity, and at times a speed of 60 miles per hour down the incline is acquired. On account of the volume of business, inspection of cars is not always what it should be and consequently there are a large number of accidents. Men are thrown from the tops of speeding cars in collision, to the ground almost every day.

The number of back injuries is very high in proportion to the number of men employed. On account of switchmen being birds of passage, as a rule the turnover is very large—about 450 men per year being employed as switchmen. A very rigid and severe physical examination is given to each applicant for employment. If he passes the physical examination, a serial number, in indelible ink, is placed on the scapular region, and he is sent to the hospital for an x-ray. This number on his scapular region must correspond to the number on the slip sent to Dr. Cushway. These men are then allowed to go to work if nothing is found in the x-ray plate that would interfere with their employment.

During the 21½ years in which we have been following this method of examining the spine, we have had a total of nearly 1,000 cases. The number of men showing variations and anomalies being almost 45%.

In 1925 we had 47 back injuries of a greater or less degree who lost 1,386 days' working time. I am sorry I cannot give you the amount of money it took to satisfy these men in settlement. Of the men who showed anomalies of the spine only 12 have to date suffered an injured back.

In 1924 the average number of accidents per 10,000 cars was 13.9%.

Hump accidents 7.8%.

In 1925 the average number of accidents per 10,000 cars was 10.1%. Hump accidents 4.4%.

In 1926 for the first nine months the number of accidents averaged 8.7%. Hump accidents 4.4%.

I realize that there are many other factors entering into the reduction of accidents besides the x-ray work which we are doing. Nevertheless it is my firm opinion that the x-raying of the new employes' backs has considerable to do with the cutting down of the accident percentage.

When we started this series of spinal Roentgenograms, we planned to let any man showing an anatomical variation or an anomaly go to work provided he was in good health otherwise—physically strong and apparently able to do the work—in order to discover if possible if these conditions were conducive to injury, or if injured if the anomalies played any part in delaying recovery. It is a remarkable statement to make but our records are in file, and not an injury was in any way connected with any of these anomalies or variations, and not a back injury has been over 4 weeks in recovery. In two and one-half years we have had but two backs to litigate instead of 47 in one year.

Sacralization of the transverse process has not proven to have been a hazard in any of our cases. No claim has ever been made by any of these men of pain in the back. Their work is hard. They are of necessity trained athletes. Many of them have had severe injuries. Not one, however, has made a complaint with reference to the back.

All three of our cervical rib men have had injuries and falls but we have heard nothing of their cervical ribs.

Sina bifida occulta is rather common among these men. Several had severe contusions to the lower back. One fell from the top of a car, estimated to have been speeding down the incline at 50 miles per hour. He fell on his back, the lumbar region, striking the rail of the opposite track. At the hospital he had a large hematoma over the entire lumbar region at least eight inches in diameter and x-ray was made immediately. His spina bifida occulta was in the same condition as when his original x-ray was made and he was back at work in three weeks. The others had slight injuries and were off but a few

days. Our experience has been that spina bifida occulta is no hazard.

Arthritis, lipping and spur formation seem to be a sure indication that the individual will work but a short time until some sudden strain, as the tightening of a brake, will produce a lumbago.

Spondylolistheses, 3 cases. All have had minor accidents with no reference to lumbar pain. All three of these men are strong athletic fellows and certainly did not acquire this condition through accident, and so far as I can see must have had this condition from early youth.

DISCUSSION ON SYMPOSIUM BY DOCTORS CAREY, CUSHWAY-MAIER, AND BOHART

Dr. Charles A. Parker, Chicago: Mr. Chairman and Members of the Radiology Section. It is always a pleasure to listen to these quadruplets. I think it is easier to call them the four horsemen. I have heard them before, and they always have something to add to their experience.

Starting, as Dr. Carey has, with the fundamental part, the basis, the anatomy of the spine and some of the physiology, he has laid down a good foundation for the superstructure. Then follows the x-ray of these symptomless spines, by Doctors Cushway and Maier, which always brings back recollections of things that I have heard before, some of which I had known from my own experience. I am always glad to be refreshed. Along comes Dr. Bohart with the real thing, without taking any glory away from the rest of them at all. That is the application. Does it work? That is, in connection with the knowledge of the variations of the spine and the symptomless spines, can we prove that they will remain symptomless, especially with regard to this particular anomaly. Almost a fourth of them have spina bifida occulta, several compression fractures, and then the other anomalies of which they have spoken, I cannot remember all, the extra rib in the lumbar region, some in the cervical and fractured transverse processes of the lumbar vertebrae, the fractured processes over which so much complaint is made. If a man happens to have an injury of the back and that is found for the first time after his injury, it must be taken out by some surgeons.

I recall going over 250 skeletons myself before the days of the generous use of the x-ray. Many of these anomalies were noted. I might say there were symptomless spines, too. They were cadavers and they were not applying for jobs on the Belt Line, as far as I know. But these anomalies would average up very well with those that were found by the x-ray man in this series: extra lumbar vertebrae, spina bifida, segmentation of the fifth lum-

bar vertebra were among the more frequent anomalies.

My work is orthopedic, and the spine conditions are very commonly brought there for judgment. These papers have helped me and I think will always help me very much in getting nearer to a judgment of the condition.

There is one thing I might mention, which the gentlemen may have observed. I have seen children with tuberculosis of the spine, and I have had some cases, not many, in several years, in which there was destruction of the intervertebral substance between two lumbar vertebrae with a gradual blending of the two bodies into a smaller body than one, which smaller body gradually developed up to the size of one normal vertebra. I suspect that very few of the roentgenologists here would say offhand that was two vertebrae, two lumbar vertebrae grown into one. But there is a little bit of a hook on it, and if you are wise you can distinguish it. There is a pedicle and transverse process, a pedicle and transverse process, two pedicles on one body. You may not have seen that, but you are going to see it some time.

I want to again thank these gentlemen for the presentation.

Dr. Maxmillian J. Hubeny (Chicago): I am very glad to be given the opportunity to talk to you, and I am sure we concur with what the essayists have said. It is regrettable that they did not have a larger audience. To me, this symposium appears one of the most important things on the program.

The urge, particularly for those doing therapeutic work, is to interfere in some shape or manner and do some supposedly corrective operation. Dr. Cushman's symposium, particularly with reference to the symptomless spine, is especially interesting, because of the tendency most of us have to conform to some previously made diagnosis; in other words, to render a persuasive opinion.

I think, as Dr. Bohart has brought out, that considerable harm has been done by unnecessary surgical interference. I often feel sorry for a poor coccyx or a lumbarized sacral vertebra, for a transverse process of the fifth lumbar that is sacralized, or even for a cervical rib, because oftentimes the Gigli saw is used, with the result that the patient is very much worse off than before.

As roentgenologists—and not with the idea of boasting about it—we have helped to change conceptions of the normal anatomy, and, necessarily, of the normal physiology. In school, I remember, any stomach below the navel was supposed to be a dropped stomach. Now we do not really care very much where the stomach lies, relatively speaking, unless there are supportive symptoms. Just because the stomach happens to occupy a position out of the normal does not necessarily imply that it is a sick stomach. In this respect the symposium is a very important one, because many mutilating interferences might be avoided if it were borne in mind that marked variations from the normal are oftentimes compatible with good function. In ar-

riving at a decision, we must take into consideration the triad: first, etiology; second, symptoms, and third, function. If these are absent we may disregard the question of pathology.

Dr. Carey's paper was most illuminating, because he went into the architecture of the bony structure in minute detail, and it is interesting to see the striation and cancellous formation in the bone, and how they adapt themselves to various stresses and strains. He has illustrated that beautifully in the vertebrae, and we see it in the neck of the femur.

This symposium has opened up, also, an important question in personal injury cases, and that is the so-called "bootlegging" in industrial roentgenologic work. We have roentgenologists and clinicians who, either from gross incompetence or willful dishonesty, enter into court procedures and make many claims in cases wherein they see variations from the normal that are anomalies and lead to no impairment of function. Since we have had the Industrial Commission and the liability acts, it has become a serious problem. We, as roentgenologists, have not only a medical obligation to the patient, but we have also, in a manner, a legal obligation and responsibility.

As Dr. Bohart has mentioned, this idea of pre-raying individuals should be adopted by all industries. We have all had cases, with a history of prior injury, wherein the findings, as we saw them immediately after the accident, were not compatible with the injury received. Therefore, it should be the custom of industries to ray their employees according to the hazards to which their particular occupations expose them. If a man is going to work in a stone quarry or in a mine or in some place of that kind, pre-raying would not only be a legal protection but every once in a while the roentgenologist would pick up a man with pulmonary tuberculosis, who would have no right to work at a job of that sort.

I conclude by repeating that I am sorry there is not a greater attendance, because it is an important matter to know when not to do a thing.

Dr. I. S. Trostler, Chicago: I want to relate two instances of how valuable a thing this is. A little over a year ago a celebrated grand opera singer, a woman, met with an accident, or was present when the accident occurred. There are two radiologists in the room beside myself who were called as witnesses to examine the x-ray films of her spine. We found slight anomalies and evidence of an old chronic inflammatory process. That woman got a verdict of \$12,000 for that back. She is very active athletically now, plays golf and tennis, swims and sings in grand opera. Immediately after she got her \$12,000 she got well.

Another case, a baseball player, a member of the Cubs' team, was injured sliding to a base in St. Louis. He was sent to a hospital in St. Louis and an x-ray examination made. The report was that his spine was not normal. He was immediately sent to a hospital in Chicago where an x-ray exam-

ination of the spine was made and the report came back to the head of the medical department of the Cubs, that he had a fractured spine. The head of the medical department was rather skeptical and, being an old-time friend of mine, brought the films to me. That man had a spina bifida occulta of the last lumbar arch, and when I told Dr. D. that it was an anomaly, not an injury, the doctor grabbed the telephone, called up the Cubs' headquarters, and said, "So and So plays ball this afternoon." He played ball and is playing ball ever since.

The last mentioned case is an example of what might have been improperly diagnosed as a fracture and led to a damage suit, resulting in a big sum of money wrongly awarded, just as occurred in the grand opera star's case.

Such examinations as are being made by Dr. Cushway should be made of baseball players and in many other lines of employment.

Dr. W. H. Gilmore, Benton: When this section was organized a few years ago the Chairman probably remembers that I fought the idea. The reason for this action is beautifully demonstrated in the very valuable symposium to which we have just listened. The papers which we have heard are very valuable and should have been presented to the profession at large.

Some 20 or 25 x-ray men meet here and talk about these things, but the men who should receive the information are not present. Nor will they read the papers when published in the JOURNAL. They will see that they are read before the Section of Radiology and immediately pass them up.

It would be a splendid thing if all the various branches of industry would adopt the pre-employment physical and x-ray examination, but it is impossible in some instances. The United Mine Workers have always opposed such action so the coal industry is now without such investigation and will probably continue so.

I have examined many back in Franklin County and all these anomalies were found with great frequency. I have heard physicians go on the stand and swear that these anomalies were due to trauma and be sustained by the Industrial Commission and the Supreme Court. This action is either due to ignorance or is done maliciously and it is the first of these individuals who should have heard everything that has been said here this afternoon.

Dr. Cushway: I have very little to add, Mr. Chairman. The purpose of this study was to study the frequency and the individual peculiarities of these anatomical variations in these symptomless individuals. The fact that these anomalies occur, we all knew. I think all roentgenologists knew they existed, and we knew that, too, when we first started the work. The thing that surprised us, however, was the frequency of the occurrence of these developmental anomalies. Dr. Parker has, in his discussion, mentioned that these things were found anatomically and were non-clinical. That is true.

The discussion of Dr. Hubeny, Dr. Trostler, and Dr. Gilmore, relative to the medical-legal aspects of these anomalies is very much appreciated, and I think that part should be emphasized as much as possible. It is such a common thing to be brought into court to testify in a series of films taken of a back, to have some one say a rudimentary twelfth rib, dorsal or lumbar rib is a fracture. Also to have someone say a sacralized fifth lumbar is causing the weak back or causing symptoms, or that spina bifida is causing symptoms when these people are so infrequently incapacitated. That is one of the reasons we started this study.

Dr. Hubeny's suggestion also as to the advisability of this work in the examination of individuals before being taken into employment was another stimulation for this study. We feel it would certainly be a great saving from an economic standpoint to make these studies before individuals are taken into employment and in that way eliminate those individuals totally unfitted for certain kinds of work.

Dr. Bohart: I just want to emphasize, if I may, the point that I tried to bring out. We have taken for this series of symptomless spines a large number of switchmen, and you know, I suppose, that a switchman does hard and rough work. He works under conditions conducive to bad actions. Yet we have not had the complaint of a fracture or an injured sacralized transverse process during almost three years.

There is scarcely a switchman who does not have an accident of some sort at least once a month. The x-ray man has reached a pedestal today in medicine where he is practically a soul arbiter. His word is law in the diagnosis of roentgenograms, injuries and fractures. There is no question but that the vast majority of roentgenologists are absolutely honest, but occasionally an individual creeps in who causes discredit, as is the case in other branches of our profession.

Recently we examined a whole raft of plates sent down from Duluth where a diagnosis of a fracture of the fifth lumbar vertebra had been made. A suit had been started by a switchman there for \$50,000. The defendant discovered that this man had worked for us some months before, and they brought their plates down, taken after the alleged injury. Both sets of plates were identical, and after the Judge in the case had examined these two sets of plates the suit was dropped. A few days later almost the same thing occurred in St. Louis with the same results. There is no question in my mind but that the x-ray man who had examined these plates both in Duluth and in St. Louis knew that it was a simple spina bifida occulta and not a fracture. It seems to me too bad that men will do this sort of thing, and we as roentgenologists should take the matter up in our local societies, and the subject of truthful representation regarding the diagnosis of x-ray plates should be hammered home.

PRELIMINARY REPORT OF SOME OF
THE BIOLOGICAL EFFECTS
OF X-RAY*

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This preliminary report deals with work that we are doing to determine the effect of effective wave length and Roentgen unit:

1. On the histology of the ovary;
2. On the fertilized ovum; and
3. On the offspring of avian eggs, and mammals that receive rays just below the sterilization point.

To carry on this experimental work we have been fortunate in securing as co-workers such able men as Dr. G. L. Clark, associate professor of chemistry in the chemistry department; Dr. Elmer Roberts, associate eugenicist in animal husbandry; and Professor G. H. Hill of the histological department, all of the University of Illinois. Were it not for the cooperation and suggestions of these men it would be impossible for us to carry on this work.

The advancement of the knowledge of x-ray science in the past few years has been so rapid that the literature up to one or two years ago is rapidly become obsolete, due to the inaccuracy and unsettled methods of measurements of x-ray dosage, the wave lengths, and penetration of given wave lengths in tissue.

We now have methods of measuring dosage in the Roentgen unit and wave lengths. Work is being done on the percentage penetration of given wave lengths at given depth which will shortly be published.

*Read before the Section on Radiology, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 10, 1928.

Previous work on the histological changes, the most of which has been on ovarian tissue, has not given consideration of effective wave length and "R" unit. It discusses the effect of x-ray without reference to amount and intensity of the ray used, leaving the field open for the scientific investigation and research on the various effective wave lengths on each of the numerous normal tissues of the body at different "R" units, as well as pathological tissue reacting to Roentgen ray. This obviously leaves a field entirely too large for us to cover.

In our animal experimental work we confined ourselves to effective wave lengths and "R" units as given in Table A. For studying the histological changes produced in ovarian tissue by the use of the Roentgen ray we used the young, unmated female rabbit. We destroyed a normal rabbit that had not received Roentgen radiation to use the sectioned ovaries as a control, and to obtain the approximate measurements of structure covering the ovaries. The remainder of the rabbits were given various rayings with filters as given in Table A.

Kadi¹ assumes that the sensitivity of the ovary increases from the mature follicle over the primordial follicle to the growing follicle. Braun's in examination of irradiated ovaries in Frankel's Clinic, considers the youngest follicles as being the most sensitive, then follows the primordial ones, then the mature ones. According to Robinson², systematic histologic studies at weekly intervals for a period of seven weeks showed that the tertiary follicles are the most susceptible to the effect of Roentgen rays, and that the ovule is the most sensitive part of the follicle. The primary follicles are not affected by a castration dose and can therefore continue to ovulate as soon as the effect of the irradiation is

TABLE A
RABBITS

No.	Dates and "R" Units of Treatment						Total "R"	Killed A.U.	P.K.V.	MA.	Filter Dist.		
	2-22	2-27	3-3	3-8	3-19	4-16					Cu	Al	
1	....	....	....	a289.75	.....	.....	289.75	3-22 0.22	180	5	1/4	1	50 cm
2	a165	b165	a165	.....	.....	.....	495.00	3-12 0.21	180	5	1/2	1	50 cm
3	....	a165	a165	a221.84	.....	.....	551.84	3-19 0.21	180	5	1/2	1	50 cm
4	b110	a165	a165	a220.00	.....	.....	660.00	3-19 0.21	180	5	1/2	1	50 cm
5	....	a165	a165	a221.84	a230.63	.....	782.47	3-24 0.21	180	5	1/2	1	50 cm
6	b110	a165	a165	a220.00	a353.65	.....	1013.65	3-24 0.21	180	5	1/2	1	50 cm
7	....	....	....	.....	.....	a144.00	144.00	4.25 0.20	200	5	1	1	50 cm

Depth of tissue and ovary, Back 5.5 cm, Abdomen 2.5 cm.

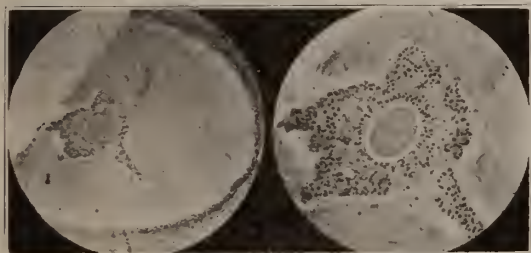
a—Rayed through the abdomen.

b—Rayed through the back.

These rabbits were about the same size.

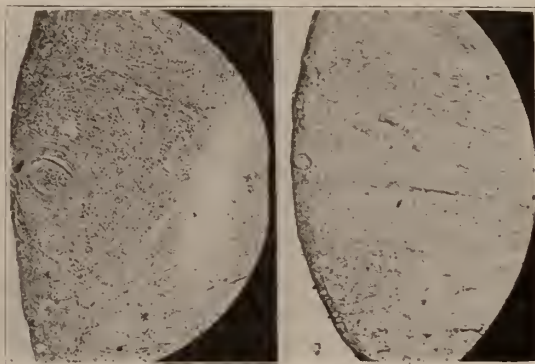
over, and should impregnation follow irradiation a normal pregnancy and normal offspring may be expected, while H. J. Muller³ in similar work on flies, obtained mutations. Bromwell, Parks and Fielding⁴ describes the ovaries of six mice rayed in utero and thirty rayed at birth. The findings were the same as those of

rats and rabbits that even minimal doses cause histological demonstrable changes in all the follicles, even the primordial follicles. The seriousness to the embryonic germ can only be presumed. No limit can be estimated for a harmless dose, even diagnostic doses may include injury. Therefore the ovaries should be excluded from any therapeutic irradiation unless offspring is no longer considered. Using the quantity of rays that will cause a slight erythema of the skin as a unit, doses of other tissues have been calculated. According to Wintz, the dose for the ovary and testicle is 34 percent, for sarcoma it is 60 to 70 percent, and for carcinoma 90 to 100 percent. These doses may not be regarded as specific because of the capability of tissue acting differently to stimuli at different times. Each case should be treated as an individual according to its own merits.

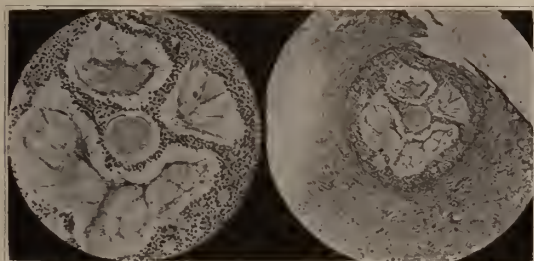


Figs. 1 and 1A. Unrayed Normal:
1—Low power magnification.
1A—High power magnification.

animals irradiated at three weeks; degeneration of the oocytes and follicles to be followed by two proliferations of the germinal epithelium in the form of cords. They also exposed 47 female mice at three weeks of age to a full sterility dose and found that irradiation caused degeneration of all the oocytes. The membrane granulosa and the interna, where it was possible to differentiate them, likewise showed degenerative changes. In a few cases it was noted that the large follicles became filled with blood and formed cysts or the cells of the theca interna and membrane granulosa invaded the follicle cavity and formed a corpus luteum atreticum,



Figs. 4 and 5. Unrayed Normal:
Showing germinal epithelium and ovarian structure.
4—High power magnification.
5—Low power magnification.



Figs. 2 and 3. Unrayed Normal:
2—Low power magnification.
3—High power magnification.

which persisted indefinitely, but appeared to have no effect on the oestrogen cycle. Simultaneously with these changes the old interfollicular tissue atrophies. Our work confirms the experience of Robinson, Bromwell and co-workers. Martius⁵ states that it has been proven by experiments on

Gross Appearance—Gross appearance of the rayed ovaries were much smaller in size than the unrayed. This decrease in size was progressive from the normal, to the ovaries receiving the smaller dose, to the ovaries receiving the larger dose of Roentgen ray. The shrinking was to the extent of about one third that of the normal ovary.

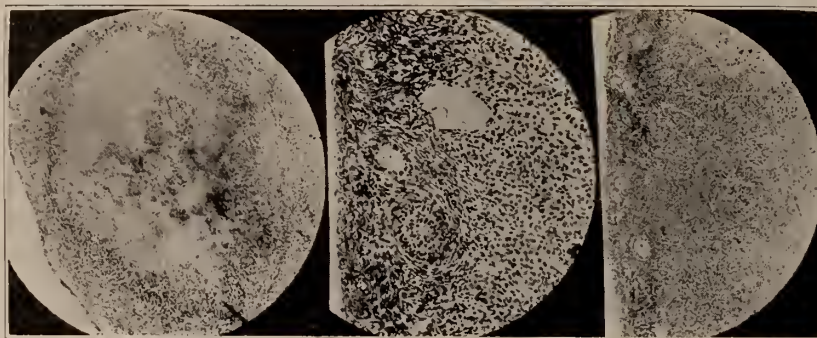
Histology—Microscopically in the normal ovary we have a mature corpus luteum and ovum, the ovum ready to leave the corpus luteum (Fig. 1). On the opposite side of the same ovary we have ovum in the late stage of development. The cells around the corpus luteum are formed in layers, the corpus luteum is well formed, the ovum is well developed and freeing

itself from its attachments to the corpus luteum (Figs. 2 and 3). In no case were we able to find an ovum developed to near this extent in the ovaries receiving rayings.

Figs. 4 and 5 show the structure of the normal

ova are broken down than were noticed in sections from the rabbit receiving less raying in a single dose. Small developing and primordial ova are not broken down as shown in Fig. 10.

Figs. 11 and 12 are from a rabbit receiving



6 7 8
Figs. 6, 7 and 8—Receiving 290 "R" units.

ovary, germinal epithelial layer, developing and primordial ova.

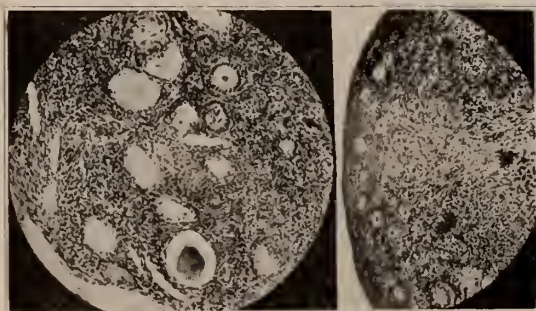
In studying the changes in the ovaries receiving Roentgen raying, the stroma is atrophied, causing a closer arrangement of the cells. This becomes more apparent as the "R" units of rayings are increased.

Figs. 6, 7 and 8 are specimens taken from a rabbit receiving 290 "R" units of radiation. Fig. 6 shows a nearly developed corpus luteum and ovum with a complete disarrangement of the cells forming a homogeneous mass. Fig. 7 shows a developing ovum completely broken down with the atrium filled with blood. Fig. 8

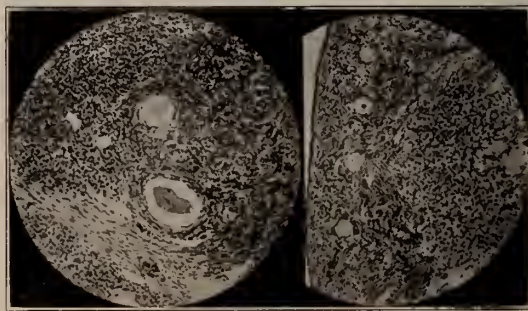
551.84 "R" units in divided doses, the medium sized developing ova are destroyed. In Fig. 12 the chromosomes of the young ova are disarranged, showing a very close packing of the cells of the ovary.

Fig. 13 is a section from a rabbit receiving 660 "R" units in divided doses, the developing ova being broken down.

Figs. 14, 15 and 16 are sections of the ovary from a rabbit receiving 782.65 "R" units. In these sections where the ova were far enough advanced in development to study the changes, the nucleus of the ova are invariably disarranged which would indicate sterility. Fig. 15



9 10
Figs. 9 and 10—Receiving 495 "R" units.

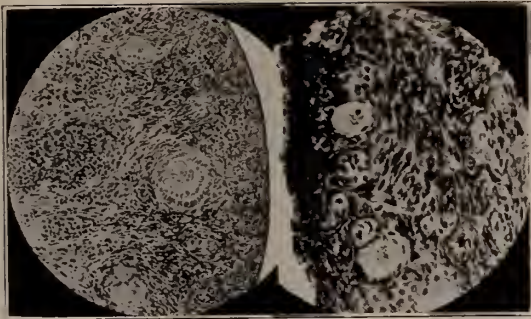


11 12
Figs. 11 and 12—Receiving 551.84 "R" units.

shows the close arrangement of the cells of the ovarian structure.

Figs. 9 and 10 are sections of an ovary from a rabbit receiving 495 "R" units divided into three doses. In Fig. 9 more of the developing

shows a large blood clot in the atrium of an ovum. Fig. 16 shows very closely packed ovarian cells with few primordial ova in the germinal epithelium which are apparently being squeezed out of existence.



13
Fig. 13—Receiving 600 “R” units.
14
Fig. 14—Receiving 782.65 “R” units.

Fig. 17 is a section of an ovary from a rabbit receiving 1013.65 “R” units, showing broken down ova with germinal epithelium, almost complete absence of primordial ova.

TABLE B
EGGS

180,000 P. K. V. 5 MA. ¼ Cu 1 A1 50 cm. Dist.					
		Effective A.U. O.22			
Time Rayed	“R” Units	No. of Eggs	No. Inf.	Dead Germs	No. of Chicks
2 min. 34 sec.	38.50	10	2	5	3
5 min. 9 sec.	77.25	9	2	3	4
7 min. 43 sec.	115.75	10	1	5	4
10 min. 18 sec.	154.50	10	0	3	7
12 min. 52 sec.	193.00	10	0	7	3
15 min. 27 sec.	231.75	10	3	4	3
18 min. 1 sec.	270.25	10	0	6	4
20 min. 36 sec.	309.00	10	0	8	2
23 min. 10 sec.	347.50	8	1	4	3
25 min. 45 sec.	386.25	7	0	6	1
28 min. 19 sec.	424.75	6	1	4	1
36 min. 3 sec.	540.75	7	1	4	1
43 min. 46 sec.	656.50	7	0	5	1
51 min. 30 sec.	772.50	7	0	7	0
59 min. 13 sec.	888.25	7	0	7	0
66 min. 57 sec.	1004.25	7	1	6	0
77 min. 15 sec.	1158.75	8	1	7	0

In our second experiment, the effect of the Roentgen ray on fertile ova, we used hen’s eggs, determining the lethal dose by dividing the eggs

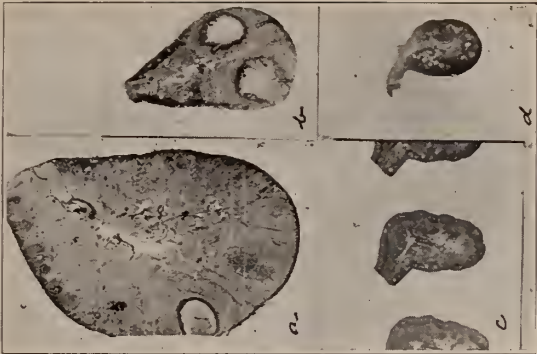


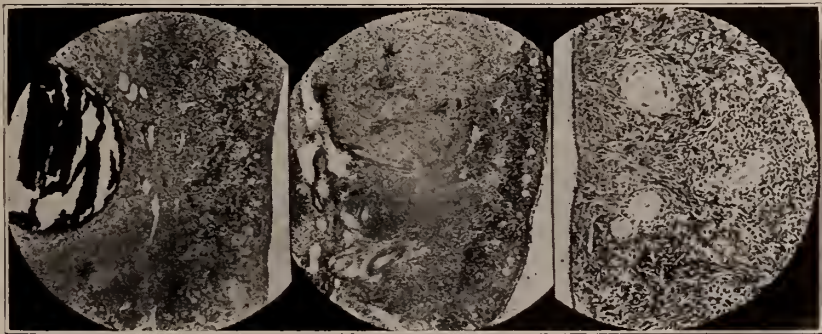
Fig. 18—Gross appearance:
a—Unrayed normal.
b—Small amount of raying.
c and d—Receiving larger amounts, respectively.

into several groups, raying them in step-up doses, using a filter of ¼ mm. of copper and 1 mm. of aluminum and a distance of 50 cm. Table B shows the results of this experiment giving the “R” units, the number of eggs in each group, number infertile, number that died in embryo, and the number of chicks hatched.

It will be noted that in the rayings from 38 to 347 “R” units inclusive the smaller doses had equal effect as the larger, namely an unusually large number of chicks died in embryo.

In the next four groups receiving from 386 to 656 “R” units inclusive, there was one living chick hatched in each group and two infertile eggs; while in the last four groups, receiving rayings from 772 to 1158 “R” units inclusive there were no living chicks hatched; all but two died in embryo, the remaining two being infertile.

This work is being carried on further by Dr. Roberts. He will likely report his results at the proper time.



15
16
17
Figs. 15 and 16—Receiving 782.65 “R” units.
Fig. 17—Receiving 1013.65 “R” units.

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DISCUSSION

Dr. Kaplan, Chicago: I'd like to have the doctor's opinion as to what actually happens to the cell when exposed to radiation—whether it is x-ray or radium—what the actual phenomenon is that takes place, whether the cell destruction is due to a disarrangement of its atomic structure or due to a rearrangement of its ions or whatever it may be, whether it is an electrical dissolution or a real biological dissolution.

I am very anxious to know what his personal opinion on that is.

Dr. J. H. Carpenter: I simply wanted to bring forth the idea of the fertility or non-fertility of the offspring from these eggs that had been rayed but not destroyed. It seems to me, in view of Wiesman's theory in that regard, that it would be quite valuable to know whether these chicks from these eggs, when they reached maturity, were fertile or not.

Dr. I. S. Trostler, Chicago: Just one item, though not directly connected with this subject.

I was called upon this morning by a lady whom I sterilized ten years ago for tuberculosis. She was tubercular and had a bad heart. She had an amenorrhea for ten years and yesterday began to menstruate.

I am going to watch that case and I am going to be able to report something. That is the longest amenorrhea that I have had where apparently normal menstruation reappeared. She is thirty-six now. She was twenty-six then.

Dr. Orndoff: What has been her psychological state during that time?

Dr. Trostler: Wonderful!

Dr. Bucher: I want to thank the men for discussing this paper. This is my first appearance before the Radiological Section.

In regard to just what happens to any cell that receives radiation, I do not know. This is one thing that none of us really understand. I know of no one who does. Whether these electrons go into the cells and give an electronic charge or just what happens to the cell I am unable to say. How the effect is brought about in the tissue of these ovaries or just what happens, is not definitely known. As Dr. Orndoff said, we are not sure just what happens in protoplasm.

We looked up some literature, I have forgotten

just who did the work, in regard to the effect of regeneration on a dog. They isolated a part of the pancreas and in that portion of the pancreas fastened tubes to the duct, very carefully screened off the rest of the pancreas and produced quite a stimulation of the pancreatic function. The pancreatic secretion was reduced for some time but gradually came back to normal. I think this was done in 1924.

Dr. Orndoff: That was Ivy, and my report in the American Journal of Roentgenology in 1926.

Dr. Bucher: This is the only place we have found anything of this kind. We have tried to find something more along this line but could not find anything.

There has been some work done, radiating a normal skin and seeing how long it takes it to come back to normal; again giving a destructive dose or nearly destructive, and see how long it takes to come back to normal. If we are going to do that in all the various tissues of the body from hair to toenails, it is going to take a long time and a lot of work, and it is too much for me.

In regard to fertility, that is one thing of course that will take some time. We have these chickens, we are raising them, keeping them separate to find out about the fertility of the offspring and also the mutations. If we can do this on the mice which Dr. Roberts has and also the chickens that the University have that have not been cross-bred for twenty-three years, we have something to work with. If we take an ordinary field mouse and mate it and think we have something, we are mistaken, because there are a certain amount of mutations, a great many more mutations than in the animals that are true to form.

In regard to tuberculosis, and sterilizing for tuberculosis, I have sterilized a couple of patients and had very nice results. I do not know how long they will stay sterile. I have not had them come back and say that they are menstruating.

CARCINOMA OF THE PANCREAS*

CLIFFORD U. COLLINS, M. D.,

PEORIA, ILL.

Carcinoma of the pancreas is not a common affection but it probably occurs more frequently than is suspected. Carcinoma is found in the head of the pancreas about three times as often as it is found in the body or tail.

Writers vary greatly in their description of the symptoms. Most of the writers agree that pain is a common symptom but Gilbride says that "pain is not common in cancer of the pancreas." Many of the patients describe the pain as a "discomfort" or a "misery" and very few

*Read before the Section on Surgery, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

say they have any acute, colicky pain. It is probable that Gilbride was thinking of acute, colicky pain when he made the above statement.

Ferguson and others have said that a pancreatic diabetes, or a glycosuria, may be expected while Osler says that "symptoms due to loss of function of the pancreas are less important," and Wilder and his associates report a case of carcinoma involving the islands of Langerhans in which there was hyperinsulism.

If the carcinoma occurs in the head of the pancreas, jaundice is usually a fairly early symptom. A gradually increasing jaundice coming on without acute, colicky pain suggests the diagnosis of a cancer in or near the head of the pancreas, but it will not always be correct. It has been said by some one that "always" and "never" are two words that should not be used in medical literature.

I wish to report a case that shows that gradually increasing jaundice without acute pain may not be due to cancer and may be caused by stones in the common duct.

Miss M. C., aged 45, was seen on February 14, 1914. In June, 1912, she began to feel tired; her skin began gradually to turn yellow. She had no pain till February, 1913, eight months after the beginning of the jaundice, when she had her first attack of pain which was located in the right upper abdomen and did not radiate. The pain was very severe, lasting about twenty-four hours. She did not vomit. After the attack of pain the jaundice became much worse.

She had several milder attacks of pain between February, 1913, and February, 1914, when I saw her. In February, 1913, just a short time before the first attack of pain she consulted an excellent surgeon in Central Illinois who very properly diagnosed a carcinoma and declined to operate. Eight months' jaundice without pain would probably make any of us hesitate. She was thin in flesh but had been so all her life and had evidently not lost much in weight. She was cheerful and did not appear to be sick except for the jaundice. It was evident that if she had a cancer for twenty months her condition would have been much worse.

A stone in the common duct was diagnosed and an operation on February 23, 1914, revealed two very large stones in the common duct and a small, contracted gall bladder which contained mucus and pus. A choledochotomy with removal of the stones, and a cholecystectomy were done. The patient was alive and in good health the last time I heard from her in March, 1928.

All the writers agree that patients with carcinoma of the pancreas begin to lose flesh early

in the course of the disease; this loss of flesh continues progressively until the exit. Many writers have recorded, either directly or indirectly, that a large proportion of the patients suffering from cancer of the pancreas, particularly of the body of the pancreas, have more discomfort *when lying on the back*. Some say, indirectly, that the patient is more comfortable when standing or sitting and bending forward, and others say, directly, that the patient is more uncomfortable when lying on the back.

The carcinoma may exist some time before the tumor may be felt through the abdominal wall. In fact it is seldom possible to feel the tumor until a short time before death. The analysis of the stomach contents and the fluoroscopic examination of the gastric and intestinal tract do not usually furnish any information as to the site and character of the trouble. The disease occurs more often in the middle years of life and most of the patients are past forty years of age.

Carcinoma of the head of the pancreas is diagnosed easier and more promptly because of the jaundice that usually appears fairly early in the course of the disease. Carcinoma of the body of the pancreas is more difficult to diagnose. We were unfortunate last year in having two patients with cancer of the body of the pancreas.

H. G. G., male, aged 47, was seen on August 21, 1927. In March, 1927, he began to feel a distress in the mid-upper abdomen and he had it every day until we saw him. This discomfort bothered him more at night when he was lying down. He could not lie on his back because his misery was much worse then. He also had a pulling sensation in the upper abdomen. At 3:00 a. m. on August 19, 1927, he had a sharp pain in the mid-upper abdomen which lasted three-quarters of an hour and did not radiate. About 3:00 a. m. on August 20, he had another attack of sharp pain, only more severe, in the same location. The attacks of pain left a soreness in the mid-upper abdomen.

He had lost twenty pounds or more in weight since March. He had not vomited and had passed no dark stools. He had a fair appetite until a few days before the examination. He had been examined at the Presbyterian Hospital in Chicago four weeks before we saw him. They told him the cause of his trouble was not in his stomach, but they were unable to find the exact location and cause.

On examination, he had some tenderness on pressure over the mid-upper abdomen. The urinalysis and blood examination were practically negative. The test meal and Roentgen ray examination of the stomach did not reveal any cause for his symp-

toms. We acknowledged frankly that we could not diagnose his trouble and suggested an exploratory incision which was accepted.

On August 27, 1927, the incision was made through the upper portion of the right rectus muscle and revealed a hard mass, about four inches in diameter, in the center of the upper abdomen. The tumor was retroperitoneal and was in the body of the pancreas. The hardness of the tumor extended to the left or tail of the pancreas. The right and left lobes of the liver had hard nodules in them. One of these nodules was in the edge of the right lobe and I was able to remove it with a V-shaped incision without difficulty. An exploration of the abdominal cavity revealed nothing else abnormal. An examination of the metastatic nodule removed from the liver showed a gelatinous carcinoma. The operative recovery was uneventful but the patient died about five months after the operation.

J. I., male, aged 44, was seen on September 27, 1927. In April he began to have crampy pains in the lower abdomen, worse on the left side. About August 15, he began to have crampy pains in the upper abdomen and they left the lower abdomen. The pain in the upper abdomen continued to the date of the examination. For two months prior to the examination he had pain that began one-half hour after meals and lasted two or three hours. Later the pain began at irregular times after meals. For three weeks he had been nauseated but did not vomit. He had a feeling that something seemed to stop the fecal flow at the splenic flexure of the colon so he had taken an oil enema at bedtime for six weeks. For a short time previous to our examination the pain in the upper abdomen had been more severe, particularly at night, and radiated through to the back on both sides, but was worse on the left side.

He had had his stomach and intestinal tract fluoroscoped at another hospital in August and was told that nothing abnormal was found in his stomach, but he had a spastic colon and his duodenum was a little enlarged. He had lost weight, weighing only 111 pounds, although five feet and six inches tall. It was difficult for him to lie on his back because of the increased distress it caused in the central upper abdomen. For ten days prior to our examination his pain required one-quarter grain of morphin each night. The urinalysis and blood examination showed nothing abnormal, the hemoglobin estimation being 89 per cent. A test meal and a Roentgen ray examination revealed nothing abnormal. He was told that we could not make an exact diagnosis and an exploratory incision was advised and accepted.

The incision through the upper half of the right rectus muscle was made on October 3, 1927, and revealed a large, round tumor, four or five inches in diameter, in the body of the pancreas and to the left of the spine. There was a little nodule in the edge of the left lobe of the liver which I excised

with a V-shaped incision. An exploration of the abdominal cavity revealed nothing else abnormal. The nodule removed showed a definite carcinomatous area in the liver tissue. The operative recovery was uneventful but the patient died about December 2, 1927.

As stated before, in carcinoma of the head of the pancreas, jaundice usually occurs at an early period of the disease which helps in the diagnosis. If an exploratory incision is deemed necessary and cancer is found, something may still be done for the patient. The gall bladder may be anastomosed to the stomach, or duodenum, and some of the symptoms, such as the itching accompanying the jaundice, and the digestive disturbances, may be benefited. The success attending removal of all or a part of the pancreas has not been such as to encourage much endeavor in that direction. I removed the head of the pancreas for cancer once back in 1909 but have had no desire to attempt it again. In carcinoma of the body of the pancreas nothing can be done but treat the patient symptomatically.

The object of this paper is to encourage a closer study of cases of carcinoma of the body of the pancreas in an endeavor to avoid the necessity of an exploratory incision. Practically all of these patients have pain in the mid-upper abdomen and the pain is persistent. Most of the patients are in middle life and most of them are males. All of these patients lose flesh as the disease progresses. A roentgenological examination of the stomach and intestinal tract will usually reveal nothing abnormal. Several writers have called attention to the fact that many of these patients suffer more *when lying on their back*.

If a male patient between forty and sixty years of age suffers continuous pain and discomfort in the upper abdomen, particularly if the pain radiates to the left side of the back and is made worse by *lying flat on the back*, is losing flesh progressively, and a roentgenological examination of the gastric and intestinal tract reveals nothing abnormal, a diagnosis of carcinoma of the body of the pancreas is probably correct, and should not require the subjection of the patient to the danger and discomfort of an exploratory incision.

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DISCUSSION

DR. A. E. McEVERS, Rock Island: I would like to ask if a renal function test has been used in the effort to make a differential diagnosis between malignancy and gall stones.

DR. C. E. BLACK, Jacksonville: I rise to compliment the essayist on a very interesting paper. I suggest in line of the question in the case reported where carcinoma was suspected, and it proved to be a stone in the common duct with cholecystitis, that the method developed by Graham's Clinic of making a "liver function" test and at the same time making cholecystograms would furnish valuable evidence in differential diagnosis, because in that case there would in all probability have been positive cholecystograms and high liver function which would be contrary to a diagnosis of carcinoma. I have had some interesting experiences in the last few weeks with the liver function test determined by the Graham-Cole method in its relation to carcinoma.

DR. E. F. HERDIEN, Watseka: Some time ago I had a patient who refused operation on what seemed to be a stone of the gall-bladder. At autopsy she proved to have had a carcinoma of the head of the pancreas with small metastases in the left lobe of the liver, and, what was the most interesting part of it, a complete digestion of the entire omentum. At no time did she have glycosuria, but during the last three months she developed endarteritis in both legs, necessitating amputation of one above the ankle. Perhaps the most interesting feature of the case, however, was the exfoliative dermatitis which tortured her for more than a year, a complete cast of the entire body being shed every two weeks. She never had any jaundice, just that peculiar pain when prone on her back outside of the occasional pain in the liver section.

DR. C. U. COLLINS, Peoria (closing the discussion): I have not done liver function tests very much, not enough to answer the question from practical experience.

In answer to Dr. Black, the patient was first seen

in 1914, a little too early for the Graham-Cole cholecystogram to be used.

THE MORE COMMON DISEASES OF THE ANUS AND RECTUM*

P. F. JAMES, M. D.

PEORIA, ILL.

By the more common diseases of the anus and rectum we mean those diseases of the anus and rectum most frequently met with in our work as proctologists. We do not mean conditions that are not trouble producing. Some of the more common and apparently simple conditions found in the anus or rectum produce very grave symptoms and system changes. The discomfort to the patient will appear out of all proportion to the physical findings. These patients are indeed sick. They go from one doctor to another being treated with various pile ointments, diagnosed hysterical, and never having had a rectal examination by any of the physicians. Physicians are too prone to take the patient's word for any form of rectal trouble, and prescribe for his patient without a rectal examination, and thus pass up the real cause of the patient's discomfort.

Let us enumerate those diseases and conditions most frequently encountered in anorectal surgery. They are capillary varicosities, crypts, ulceration, polyps, fissures, fistulae, hemorrhoids.

In treating diseases of anorectal region the general treatment of the patient must receive just as close attention as is given to the surgery. It is useless to try to relieve these conditions by surgical means and to neglect the supportive treatment of the patient. In the scope of this paper we shall not enter into the pathology of various diseases discussed, but shall confine the paper to the surgical treatment thereof. As near as can be determined practically all anal diseases with the exception of external abscess and fistulae originate from a peculiar localized infection of the mucous membrane and submucous coat of the rectum, this infection occurs first at the boundary line between the anus and rectum. Another great cause is, any condition which interferes with proper abdominal mechanics, which cause venous stasis of the pelvic

*Read before the Section on Surgery, Seventy-eighth Annual Meeting of the Illinois State Medical Society, May 9, 1928, Chicago.

and lower abdominal organs, and conditions which bring about the engorgement of the portal circulation.

The Proper Preparation. The proper preparation of the patient adds very greatly to the success of the operation, and should not be neglected. In those cases where we have plenty of time to prepare the patient for operation, it is my practice to give at least six ultra-violet treatments before operation, in this way the patient's resistance is raised and general conditions very much improved. The most important pre-operative care is directed to the portal circulation. The immediate pre-operative preparation of the patient consists of placing the patient in the hospital the day before operation, giving an enema the afternoon or night before, but not the morning of the operation. In this way the patient goes to the operating room with the bowel in a quieted condition, and not with the bowel in a hyperactive condition. We believe that it is a mistake to purge or physic the patient immediately before operation. It is our practice to give a preliminary hypo of morphin and atropine whether the anesthetic is to be local or general. Of course the usual shaving and sterile dressing are to be applied. The anesthetic of choice is gas-ether anesthesia. The gas relaxes the patient and quickly produces anesthesia, which can be maintained by switching to the ether. The gas-ether anesthesia is especially suited to cases of very nervous irritable patients, and most patients with a severe rectal lesion are nervous and irritable; indeed many apparently trivial lesions of this region cause the patient to be very nervous and upset. Local anesthesia in selected cases is very suitable for rectal work. We use one-half of one per cent. novocain. This is used by injecting from four points about the rectum and through these four points producing complete relaxation of the sphincter.

This is followed by depositing a few drops of the anesthetic in the mucous and sub-mucous coats about the vein in case of hemorrhoids or along the tract of the fissure and fistulae. It is important not to deposit the anesthetic in the vein.

The After Care of the Patient. In discussing the after care of these cases we are going to generalize and not touch upon the after care for

each condition as we discuss it. In all anorectal work following the operation it is our practice to give codeine sulphate gr. 1/6 every three hours for the first three days. This codeine prevents undue pain and distress and locks the bowels at the same time. At the end of the second day we give mineral oil 1/2 oz. three times daily until a soft stool is produced. This in general constitutes the after treatment of these cases.

Fissure in Ano. A painful easily discovered condition of the anus which produces symptoms out of all proportion to the pathology present. The surgical treatment consists of division of the entire length of the fissure curetting the tract and packing with gauze, no sutures being used as this tract must be kept open until healing from the bottom outward is accomplished. The point to be remembered in connection with this operation is dilatation of the sphincter to prevent spastic contraction and irritation. By giving the patient gas the sphincter may be divulced at regular intervals until the fissure is completely healed and no stricture of the anal canal will result. *Caution*—Be careful in dilating anorectal canal and do not over dilate it.

Rectal polyps are soft non-malignant growths occurring in the rectum and sigmoid or colon, usually in the rectum, and are usually due to severe colitis or chemical irritation. The surgical treatment consists of radical removal with stitching up the base in such a manner as to prevent stricture of the rectum.

Papillae are small cone-shaped reddened projections into the rectum which cause a severe nervous reaction to the patient. Their surgical treatment consists of removal by sharp scissors after picking up the cone or papilla by means of a sharp hook. Don't cut too deep. I have experienced just as good results by cutting off the outer portion of the cone-shaped mass as by the removal of the base and underlying mucous membrane of the rectum. Electric fulguration of the papillae is a very satisfactory surgical treatment of this condition. In using fulguration or desiccation whichever one may use, be careful not to do too much. By cutting away or electrical destruction of the papillae there is no need for sutures and I have never seen a hemorrhage of any consequence result from their removal.

Crypts or Rectal Pockets. These are just what their name suggests, pockets in the lining of the rectum. Hypersensitive mucous membrane of the rectum results from crypts and as the crypt fills with fecal matter at each defecation and must empty up hill, there results a severe sphincter spasm and irritating itching about the anus, not of the true pruritis ani type. The tearing action of the stool as it passes over the crypt often results in a fissure. Surgical treatment of cryptitis is removal by sharp scissors. By probing the anorectal junction with a blunt hook or an instrument similar to a shepherd's crook, the crypt or pocket can be raised and removed down to the smooth mucous membrane. Don't use force in searching for crypts and tear through the mucous membrane of the rectum and think you are in a pocket. The true pocket requires no force on entering and is lined by a mucous membrane. Of course the pocket may be partially torn and inflamed to such an extent that one could not recognize it if he depended upon the lining alone. No suturing is necessary in the average case.

Ano-Rectal Varicosities. This form of ano-rectal disease does not differ from varicose conditions in other parts of the body, and of course an impeded circulation is produced. After all medical measures have failed and an ulcer results, relief may be had by the use of surgical diathermia. Under local anesthesia select the most prominent varicosity and coagulate the mucous membrane over it being careful not to destroy the tissue too deeply, then select another varicosity and do likewise.

In this manner one can destroy the varix and the resulting scar tissue will by contracting cure the varicosities. *Caution*—Be careful not to destroy the mucous membrane entirely around the lumen of the gut but leave small patches of untouched mucous membrane in the circuit. The resulting scar tissue will in this way not constrict the rectum to a great enough extent to produce constipation. This very reason is my answer as to why I use the electric current instead of cutting out the veins. A more pliable and decidedly lessened scar results and yet sufficient to cure the original condition, namely varicosity.

Ano-Rectal Fistulae. Many patients suffer from fistulae or sinus. In almost all the cases the ano-rectal fistula is due to an abscess which abscess may be due to any one of the many in-

fective agencies which cause destruction of tissue in and around the rectum. Fistulae are classified in many groups and open in different places on the skin. The internal opening of the fistula is usually below the sphincter. Complete fistulae have two openings. Blind fistulae often require more care and diligence on the part of the surgeon than the frank open fistula. Non-surgical treatment of fistulae is doomed to failure in about 95% of the cases. There is no non-malignant condition of the anorectum which requires greater time, patience and industry to cure than does a complete horseshoe ano-rectal fistula. Many of these cases drift from surgeon to surgeon undergoing many operations without a cure. Why are so many of these operations for ano-rectal fistulae failures? Because many general surgeons regard them as minor surgery and do not attach sufficient weight to their surgical importance. Because we do not differentiate between ordinary and tubercular sinuses; in other words we fail in proper diagnosis. Because we fail to divide and excise all portions of the tract and its branches; do not completely sever the anal sphincter; pack the wound too firmly which destroys healthy granulations; cut the anal muscle in a zigzag fashion instead of at a right angle. Lack of free drainage; permitting the skin or mucous membrane to grow into cut and separate sphincter ends; leaving uneven surfaces, keeping feces fluid or allowing feces to become too hard. Failure to keep gauze in bottom of wound through its entire length. Omitting to build up general health. Too frequent changing of dressings.

The operation of choice is complete incision of the sinus in all its ramifications, having first injected the sinus with some colored fluid. We use 10% meth blue in peroxide of hydrogen. The peroxide boils out and pus and colors the fistula at the same time. Don't use the probe to any very great extent; start at one end of the fistula and excise it freely to the other end laying it open, then pack lightly with gauze after dissecting out scar tissue or other undesirable tissue. Don't stitch the incised fistulae.

Hemorrhoids. Hemorrhoids as an affliction are as old as the Bible itself, and probably have been the subject of a greater variety of treatment than any other condition. Surgery has been the predominant treatment. Surgery has its dangers. It confines the patient to bed, keeps

him from his work and places an extra expense upon him. The usual outcome is return of the trouble. This is however not the fault of surgery but of the surgeon who fails to ascertain and remove the cause. If this is done they will not return any more from surgery than any other method of treatment.

Piles from the standpoint of treatment may be divided into three main varieties: 1. Capillary, 2. Venous and 3. Organized.

Before considering the three varieties, we should look briefly at the causes. Cases with cirrhotic liver, mitral hearts or bad kidneys are very difficult to cure permanently. However, most of the treatments used are mild and you can always repeat the treatment on return of the piles.

Tumor formations, misplaced uterus or other conditions acting as direct obstruction should be removed or corrected.

The greatest predisposing cause is any condition which results in interference with proper abdominal mechanics resulting in venous stasis of the pelvic and lower abdominal organs.

The direct cause is usually a proctitis with tumefaction, tendency to prolapse of the engorged terminal superior hemorrhoidal veins, with gradual connective tissue infiltration acting as adhesions, binding them down, resulting in a permanent pile.

External piles are always the result of some direct irritation in the anus itself, resulting in compression of the veins as they pass between the sphincter muscles. For example, if you have a case of thrombotic pile to treat, don't forget there is some other irritation directly above it and if not treated the patient may be subject to the same irritation again. In this condition as in all ano-rectal conditions the patient and not the disease must be treated, search for the cause of hemorrhoids. Examine the general circulation especially the hepatic or portal. There is a direct connection or column of blood from the liver to and resting on the hemorrhoidal plexus.

The surgical treatment which we prefer is complete divulsion of the sphincter followed by what is known as the slit method that is the slitting of mucous membrane over the hemorrhoid and retracting it (the mucous membrane) picking up the loop of vein and snipping it out

with a sharp curved on the flat scissors, after which the mucous membrane is replaced provided no suture is necessary. If a ligature or suture is necessary this is placed around the vessel and covered with the mucous membrane, thus protecting the seat of operation. In all cases of hemorrhoids internal to the rectal sphincters it is well to watch for hemorrhage. Within the sphincter sutures or ligatures will be needed in very few cases. Give supportive treatment to the rectum following hemorrhoidectomy to prevent the formation of a new stasis of blood in the hemorrhoidal veins and a new hemorrhoid. If general anesthesia is used it is well to insert a rectal splint or ball before leaving the operating room or upon returning to bed. This prevents tenesmus and the pressure acts to retard bleeding. It is a great comfort to the patient. The rectal ball in this case acts as a splint to the injured tissue.

In presenting these few remarks to you I have endeavored to be practical and to avoid the textbook recital of symptoms, pathology etc. It is my earnest hope that all physicians will endeavor to improve their treatment of chronic cases and to do this they will find a complete rectal examination the first and greatest aid.

DISCUSSION

DR. CHARLES J. DRUECK, Chicago: The speaker has gone over so much of this subject that it does not leave me in a general way many points to catch hold of. My remarks may be a little disconnected, but I will try to follow them along.

First, I want to impress upon you that all rectal diseases are painful at all times. This is variable, however, with the temperament of the individual and with the location of the rectal pathology. Sometimes it is exceedingly painful, sometimes not. The symptoms may temporarily seem to disappear but rectal disease being either accidental, like the impingement of a fish bone or a foreign body in the rectum or else secondary, as the doctor said in his paper, and we always have to hunt around for the underlying pathology. For instance, too much energy may be spent on the method of removing a hemorrhoid and too little consideration given the pathology. If you remove only the pathology the rectum will return to a healthy, functioning organ. Secondly, we spend a lot of time discussing how we treat fissure. A fissure never occurs in my experience unless there has been pathology higher up. Note the next time you see a fissure, whether the patient has had a gall bladder infection or some conditions high in the intestinal or bronchial tracts. These patients come into my office fearful of a rectal examination. They

never have any confidence in me that I am not going to hurt and to add to his fears, I am standing behind my patient and he does not see what I am going to do. However, inspection of the perineal region will give one an idea of how much you may disturb that patient. Our ordinary anatomies picture the anus as an oval orifice. That is incorrect. As you look at the anus you find it is a longitudinal slit with rugae on each side but not many rugae anteriorly or posteriorly. Such an anus can be penetrated without causing the patient any pain. How are we to distinguish between real pain and a disturbing sensation? There is no reason to cause the patient pain on a digital or a specular examination if the anal orifice is about five-eighths of an inch long with rugae on either side. If we see an anal orifice only one-fourth of an inch long with rugae deep on either side, we are going to find a sphincter that is painful to penetrate unless we prepare it with anesthesia beforehand. Kind Providence has given us cocaine, butyn and morphin and there is no reason why we should cause these patients a great deal of unnecessary suffering. Occasionally we find what is called a patulous anus. I am now engaged on a malpractice suit trying to set right a general practitioner who removed hemorrhoids in a patient by a method that was perfectly all right. He got a good result as far as the hemorrhoidal tumors are concerned, but the patient since has had an incontinent sphincter. The patient had an incontinent sphincter beforehand, perhaps not so much, but had the doctor noticed the patulous sphincter, had he noticed that he could easily introduce a finger or two fingers, he would have called the patient's attention to it and avoided this trouble. Besides that, we always want to think when a large patulous sphincter is present, of these spinal cord lesions as the cause. Tabes is frequently evidenced here first.

The average cancer patient that comes into my office seldom complains unless it is a far advanced case of cancer in the rectum but patients do come in complaining of diarrhea and any of these rectums that are obstructed or patulous may complain of the same symptoms, either diarrhea or constipation.

The next thing is the matter of the sympathetic or parasympathetic nerves. In the intestinal tract we have five sphincters, cardiac, pyloric, cecal, sigmoidal, anal. It is about these sphincters that we also get our most marked pathology. It is in the segment of bowel orally to the diseased sphincter where we find spasticity. Those spasticities are what are causing the patient's symptoms. It is the spasticity of which the patient complains when we expose the anal canal. We get very few symptoms complained of in the sphincter. Once in a while we get a painful sphincter because of an ulcerative lesion, just above or just below that muscle. Pruritus is a type of painful sensation. It is a spastic condition below the anal sphincter just as we get it above that muscle and demands

a study of the skin about the anus and also of the mucosa, rectal wall and pararectal structures up to the next sphincter—the sigmoidal.

C. L. MARTIN: There is need for the evaluation of the various procedures used for the removal of hemorrhoids. The indications for and the limitations of the quinine and urea hydrochloride or phenol injection therapy and electrical methods for the removal or destruction of hemorrhoids is better understood now than it was a few years ago by those using these procedures; but the profession as a whole is not conversant with non-operative therapy for the relief of hemorrhoids. Many desire to know more about it, to get information from unbiased sources and to use non-surgical treatment in suitable cases. It is the function of those interested in protology to fill this want. That non-operative therapy of any sort is of value only for internal hemorrhoids, bears frequent repetition. And that injection therapy or electrical methods should not be used when there is associated anal or rectal disease deserves equal emphasis. It requires some experience to obtain good results with either phenol or quinine and urea hydrochloride injection. Even in experienced hands a necrosis and ulcer may result from the injection. Bleeding from such an ulcer is not great usually, but sometimes it is. This is more apt to follow phenol injections, in my experience.

One can not talk accurately about electrical methods unless he specifies just what method he means, whether electro-coagulation, galvano-puncture, desiccation, surgical diathermy, clamp or snare. Time does not permit a detailed discussion of these procedures. Those most frequently used are not always painless as is claimed and severe bleeding may follow them. Necrosis of the area treated with the possibility of bleeding or infection afterward must be expected in a certain percentage of cases where desiccation or electro-coagulation is employed. There are better ways of treating hemorrhoids than by the electrical methods thus far devised. If the patient with internal hemorrhoids has perianal skin tags big enough to be of consequence, he must either be persuaded they do not exist or have them removed surgically. Most doctors prefer the latter method. If the patient is to have an operation, a complete hemorrhoidectomy is the logical procedure. The patient will not always accept it. If his condition is such as demands operation and he refuses, we are better out of the case. With uncomplicated internal hemorrhoids and a few skin tags, non-surgical treatment of the internal hemorrhoids and excision of the anal skin tags under local anesthesia in the office may be necessary if we are to do anything at all for some apprehensive patients.

There is a greater tendency on the part of the general surgeon to fit the patient to the operation rather than the operation to the patient in the case of those having hemorrhoids than in most other fields. All hemorrhoidectomies can not be properly done by removing three or four strips of the mucosa and excising the adjacent skin triangle. Adap-

tation of the surgical procedure to the pathology present is a surgical principle as applicable here as elsewhere.

Just a word in regard to the anesthetic: The advantage of local anesthesia for hemorrhoidectomy is well known but it can still be more generally used. Infiltration anesthesia is satisfactory in the hands of many men. Sacral nerve block gives us very satisfactory anesthesia of the parts and excellent dilatation of the anus without distortion of the operative field.

Dr. W. D. Pennington, Chicago: First I want to congratulate the essayist on the manner in which he has analyzed and presented his subject:

The discussions which followed by Drs. Drucek and Martin brought out many interesting and special features of the subject with which many physicians are already more or less acquainted.

A great many of them do not, however, avail themselves of this knowledge much to the detriment of humanity and those who specialize in this particular field of endeavor do not spend as much effort in spreading this information before the laity as they should.

In order to get my point before you clearly I will recall to your minds that some years ago Dr. Rosenow presented a paper before the Chicago Medical Society in which he showed how infection filters through the tonsils permeating and ramifying the tissues even to the remotest part of the body, causing many diseases. In discussing this paper, the late Dr. J. B. Murphy said, among other things, "Few people appreciate the importance of this paper. It is really epoch making."

In the last few years the proctologist has accumulated considerable new information regarding infection in and about the rectum and anus and means for its control and care; but he has signally failed to do a very important thing and that is to properly present it to the rank and file of the medical profession outside his own particular specialty as well as to the laity. The throat specialists were quick to take advantage of the facts brought out by Dr. Rosenow, and not only served themselves well thereby but, in addition, did a great service to humankind. Generally speaking the proctologist alone has been benefited by the information he has gained regarding conditions about the rectum and anus. He has not, however, presented his subject to the public in a way to bring the people to him for care and treatment of these diseases.

In marked contrast to this the throat specialist has spent a great deal of his time spreading information before the public concerning the danger of keeping diseased tonsils in their throats and the urgent necessity of having them removed to prevent such chronic conditions as rheumatism, neuritis, etc.

It is my opinion that proctologists should endeavor to inform the public about the baneful effects resulting from improper care and treatment of diseased conditions in and about the rectum and anus.

Dr. J. W. Dreyer, Aurora: There is just one point that I would like to emphasize that Dr. James dwelt on very little, that is fissure in ano usually starts in one of the crypts of Morgani. It is important to find the crypt, pass a probe through, then evulse the sphincter and make an incision at right angles to the sphincter muscle, then go down to the bottom of the fissure with a curette or sharp dissection. The wound thus made may be closed by suture but I prefer to let them heal by granulation.

Dr. M. P. Cannon, Chicago: I want to compliment the essayist on his wonderful paper because he covered so much ground. I was rather disappointed in Dr. Drucek because he wrote such a wonderful book on fistulae and I thought he would discuss it from that angle.

Regarding Dr. Martin's discussion, about injection of quinine-urea in hemorrhoids, I am sorry phenol was not brought into this discussion. I use it quite extensively in five per cent. solution in Wesson oil which is practically foolproof. Some of you will be horrified to think I stand up and make that assertion. If you go back twenty-five or thirty years you will find that they have been using it in England. They are more broadminded in their ethics. All the radicals there have a chance to demonstrate their methods. By using five per cent. phenol in Wesson oil above the hemorrhoid and using it correctly you will get wonderful results.

The essayist did not mention proctitis, one of the outstanding causes in ninety-nine per cent. of rectal cases. I do not believe in taking the individual to the hospital when you can do it under local or general anesthesia in your office. I frequently dilate the rectum and follow up with fifty per cent. balsam of Peru in olei ricini and you will be surprised at the results.

Dr. William J. Wick, Chicago: I want to cite a little instance. A year or two ago Dr. Martin came out to my clinic and treated a case of hemorrhoids. He used fifty per cent. carbolic acid with glycerin in one case. That sounds pretty severe. I had a patient at my clinic who could not afford to go to the hospital and I let him use it on her. The results were perfect. The secret of that injection was simply this: He used an old-fashioned hypodermic that had a caliper nut on it. He would only put into the hemorrhoid probably not over one-half minim; in other words, he simply caused a small amount of cauterization. Never at any time did he put more than two minims in the entire field. You see your coagulation will limit your inflammation. Since diathermy has come into use, I have tried it with excellent results. One of the main points in this operation is that the patient has little after-effect. You can treat the hemorrhoids with diathermy, and you can work out the technic on a piece of ordinary meat.

For internal hemorrhoids I have found it an excellent method to produce coagulation by diathermy and the patient has no pain whatsoever; but when

you come to partial internal or external hemorrhoids where they project through the sphincter, then there is considerable pain following. Eventually, I found that an easy way to get away from the pain is to employ the method of my late friend and colleague, Dr. J. Rawson Pennington. That is by practically enucleating the hemorrhoid, destroying the vein underneath the mucosa, in the submucosa, and by cutting a button-hole slit into the mucosa and then spreading with a curved scissors, enucleating the entire vein, leaving the mucosa partially separated. He never had a patient in the hospital longer than two or three days. I follow this by simply opening up the mucous membrane by means of an Allis tissue forceps and curved scissors and taking out a small amount of mucosa, then destroying the vein underneath by means of coagulation, and in that way secure excellent results and my patients do not complain of pain.

Dr. P. F. James, Peoria (closing the discussion): I cannot say that I have anything to add. The nature of the paper was such as to bring out discussion of these various diseases of the rectum. Proctitis was overlooked because we did not consider it a surgical disease of the rectum. The many diseases discussed in the paper made it necessary to touch lightly on these various diseases. I want to thank each one of the gentlemen who discussed the paper.

NOTICE

There will be a meeting at the Hotel Pere Marquette, Peoria, Illinois, May 22, 1929, of the officers of all physicians' clubs in the State of Illinois, to which are cordially invited all physicians attending the State meeting.

The business of the meeting will be to perfect a state-wide organization of the Physicians' Fellowship Club.

Committee:

FERDINAND H. PIRNAT, M. D.,
Chairman,
 2422 Smalley Court, Chicago, Ill.
 J. F. HULTGEN, M. D.
 WARREN JOHNSON, M. D.
 GEORGE PARKER, M. D.
 J. F. SLOAN, M. D.

Society Proceedings

ADAMS COUNTY

The regular monthly meeting of the Adams County Medical Society, April 8, 1929, was preceded by a dinner at 6 P. M., at the Elks' Club.

At the conclusion of the dinner, the president called upon one of the guests, Dr. L. D. Moorhead of Chicago, to give a few brief remarks concerning the present status of medical education. Dr. Moorhead responded in a very interesting manner.

The first speaker was Dr. L. D. Moorhead, Dean

and Professor of Clinical Surgery, Loyola University School of Medicine, Chicago. Dr. Moorhead gave a very interesting paper, "Some Considerations of the Thyroid Gland," that was illustrated with lantern slides. The paper was largely devoted to the consideration of some of the surgical aspects of the treatment of toxic goiter. The discussion was opened by Drs. O. F. Shulian and H. J. Jurgens, followed by Drs. C. K. Gabriel and J. A. Koch, and finally concluded by Dr. Moorhead.

The next paper by Dr. Clement L. Martin, Professor of Proctology, Loyola University School of Medicine, Chicago, was "Tumors and Ulcerations of the Rectum and Sigmoid." This was illustrated by numerous lantern slides. The discussion was lead by Drs. Grant Irwin and J. A. Koch, and concluded by Dr. Martin.

Dr. Koch made a motion that we extend a rising vote of thanks to Drs. Moorhead and Martin for coming to Quincy, and that we honor them by an honorary membership in the Adams County Medical Society. Motion was seconded and carried.

The secretary announced the death of Dr. Albert Garver of Lima, and made a few additional remarks, followed by the reading of the minutes of the Council Meeting of April 6, which were approved.

Meeting adjourned at about 11 P. M.

HAROLD SWANBERG, M. D., Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, April 3, 1929.

Travelogue on Glacier Park.....
L. M. Farrell, Great Northern Railroad
 An analysis of Obstetrical Cases, with Reference to
 the Incidence of Scarlet Fever and Puerperal Infection.....
Fred L. Adair, Minneapolis, Minn.
 Discussion—Wm. C. Danforth, E. L. Cornell.
Joint Meeting Chicago Roentgen Society, April 10, 1929
 The Canti Film.....Gilbert Fitzpatrick
 Cancer as a World Problem.....
Joseph Colt Bloodgood, Baltimore, Maryland

THE CANTI FILM

This is the three-reel cinematographic demonstration of living tissue cells growing *in vitro*, which was developed by Dr. R. G. Canti, of London, with the facilities afforded him by the Medical Research Council and the British Empire Cancer Campaign. The film was brought to this country by the American Society for the Control of Cancer, and is being shown here at the joint meeting of the Chicago Medical Society and the Chicago Roentgen Society, April 10, at 8 p. m.

Previous announcement of the showing of this unique film has been made in the BULLETIN, to which may be added only a few words to the effect that, while it has a certain pictorial and educational value for all who see it, it is really a highly scientific demonstration. By this means it has been possible to record growth, development, division, and changes which took place over a long period of time, and yet may be examined over a short period, and, further, may be re-examined for study and interpretation. By

the employment of most ingenious devices it was found possible to photograph the face of a watch on the same film as the microphotograph, so that the observer may gauge the relative speed of the changes taking place, and see in a few moments' time what really developed during hours, even days.

*Joint Meeting with Chicago Gynecological Society,
April 17, 1929*

Motion Pictures and Short Talk on the Hawaiian Islands and the Volcano of Kilauea, illustrated with colored lantern slides.....Francis A. Marnell

1. "The Treatment of Fibroids in Relation to their Pathology"Channing W. Barrett
2. The Key Fibroid.....Emil Ries
Discussion—Henry Schmitz, Arthur H. Curtis,
N. Sproat Heaney
2. "The Use of Forceps".....Joseph L. Baer
Discussion—Joseph B. DeLee, W. C. Danforth.

JACKSON COUNTY

Around 100 doctors and their wives from practically every county in southern Illinois joined in paying tribute Thursday night, March 28, to Drs. Charles Daniels Gardiner of Grand Tower, and Henry Clay Mitchell of Carbondale, on the occasion of their golden jubilee of service in Jackson county.

The banquet hall at the First Presbyterian church, Murphysboro, was an inviting scene. The hall was decorated with golden flowers and balloons, the jubilee colors. The ladies of the church served most invitingly a splendid repast. When all had been said and done, and the service and accomplishments of Drs. Gardiner and Mitchell extolled, the midnight hour was approaching.

The Jackson County Medical Association and the Southern Illinois Medical Association participated, along with their guests. Dr. John Hrabik of Murphysboro, president of the Jackson County Medical Association, and chairman of the meeting, called it to order and very appropriately introduced Dr. A. R. Carter (retired) of Murphysboro as toastmaster. Toastmaster Carter lived up to Dr. Hrabik's expectations in the duty at hand. Rev. Guthrie of the Presbyterian church, said the invocation.

Addresses of Evening

The outstanding addresses of the evening were Reminiscences of a Country Doctor, by Dr. W. E. Lingle, Cobden, who has practiced medicine in Jackson county 38 years.

Dr. O. B. Ormsby of Murphysboro reviewed the life work of Dr. Mitchell of Carbondale, paid him a nice tribute and pointed to some of the splendid things he had done.

Dr. Gardiner's fifty years of service in Jackson county was reviewed by a splendid paper by Dr. Baysinger of Grand Tower, a fellow townsman and admirer of Dr. Gardiner's. Because of illness Dr. Baysinger could not be present. His splendid paper was read by Dr. I. W. Ellis, Murphysboro.

The address of Prof. W. T. Felts of Carbondale on his Observations of a Country Doctor from a Lay-

man's Standpoint, might well be called the address of the evening. Not content with paying a splendid tribute to the work of the country doctor, Prof. Felts paid tribute also to the old country doctor's horse and said that the gradual retirement of the original type of country doctor was, he considered, one of the country's greatest losses.

Golden Cups Presented

Dr. J. W. Barrow of Carbondale made the talk of presentation when two golden cups were presented, one to Dr. Gardiner and one to Dr. Mitchell, as tokens of their wonderful service to the profession and to Jackson county. The tribute Dr. Barrow paid the guests of honor was beautiful.

Among the guests was Dr. Andy Hall of Mt. Vernon, Ill., just appointed to the important post of director of public health for Illinois. Director Hall was congratulated on his appointment.

JEFFERSON-HAMILTON COUNTY

The Jefferson-Hamilton County Medical Society met, March 29, at the offices of Dr. Hamilton and Maxey, at which time Dr. E. Lee Myers of St. Louis was the guest speaker. His subject was "Foreign Bodies in the Esophagus and Air Passages and Modern Methods of Removal." The talk was illustrated by lantern slides and was well received.

Dr. Andy Hall, who has been an active member of this society for thirty-eight years and who has for many years acted as one of its officers, resigned as secretary and Dr. Marshall Hall, his son, was elected to fill the vacancy. Dr. Hall, who was recently appointed by Governor Emmerson, and will assume the duties as director of Public Health, April 1, was presented with a beautiful basket of flowers. Dr. T. B. Williamson of Opdyke, who is president of the society, presented the gift with an appropriate talk. Dr. Hall responded and recounted many things covering the period of his connections with this society, stating that while he deeply appreciated the token of their friendships and the good will and respect with which he was held by his fellow physicians, and fully appreciated the honor which had come to him by reason of this appointment, it is with much feeling and regret that he finds it necessary to sever many of his relations with the physicians whom he has known for many years.

Dr. Hall has not only been congratulated by members of the local society, but has received numerous telegrams of letters and congratulation from prominent physicians throughout the state, who are well pleased with the appointment made by Gov. Emmerson.

More than fifty physicians attended the meeting last night and following the scientific program, a Dutch lunch was served.

VERMILION COUNTY

The Vermilion County Medical Society met at the Plaza Hotel, Danville, April 2, 1929.

To conform with the wishes of the National Tuberculosis Association the following program was given:

"Local Conditions in Regard to Tuberculosis," by Dr. E. B. Jewell.

"Diagnostic Errors of Early Tuberculosis," by Dr. Wilson Ruffin Abbot of Chicago.

"Massive Collapse of the Lung in Pulmonary Tuberculosis; Its Significance and Mechanism," by Dr. E. M. Van Allen of Chicago.

The speakers were introduced by Dr. E. B. Coolley. The talks were illustrated by lantern slides and x-ray plates. The lectures were plain, practical and well received by the audience.

Ninety doctors and their wives were present at the dinner. Many of the nurses from the two hospitals came to hear the speaking. Among the out of town guests were Drs. N. O. Lingberg and O. O. Stanley of Decatur; Drs. Pierce and Weinstein of Terre Haute; also several doctors from Covington and nearby towns.

DR. F. A. BAUMGART, President.
G. T. CASS, Secretary.

Marriages

WALTER PUTNAM BLOUNT, Oak Park, Ill., to Miss Frances Babbitt Hoben, of Kalamazoo, Mich., at London, England, February 26.

HIRAM J. SMITH to Miss Agnes Grant Prentice, both of Chicago, April 8.

Personals

Dr. Francis R. Packard, Philadelphia, editor of the *Annals of Medical History*, gave an illustrated lecture on "Ambrose Pare" before the faculty and students of Northwestern University Medical School, April 5.

The Edison Park Woman's Club was addressed by Dr. Reinhold C. Schleuter, April 9.

Dr. Arthur Dean Bevan and Dr. Earl R. McCarthy addressed the Chicago Surgical Society, April 5, on "Tumors of the Carotid Gland," and Dr. Harry Singer on "Perforated Peptic Ulcers Presenting Mild Symptoms: So-Called *Formes Frustes*."

Dr. Clarence C. Saelhof broadcast over station WJJD, April 3, on "Keeping Fit the Year Around."

Dr. Cleveland J. White, Chicago, addressed the Rock County Wisconsin Medical Society, April 23, on "Superficial Mycotic Dermatitis of the Glabrous Skin."

Dr. Everett Morris, Chicago, has severed his connection with the U. S. Veterans' Bureau Hospital at San Fernando, Calif., and has become superintendent and medical director of the



ANDY HALL, M.D.

The appointment of Dr. Andy Hall as Director of the Illinois Department of Public Health was noted in the April issue of the JOURNAL

Wish-i-ah Sanitarium, Auberry, Fresno County, California.

Dr. Clarence L. Wheaton gave a ten minute talk on "The Importance of the Early Recognition of Consumption" over radio station WGN, April 2.

Dr. Cleaves Bennett of Champaign, Councilor of the Eighth District of the Illinois Medical Society, represents the State Society at the Summer Round-Up Dinner at the State Meeting of the Illinois Congress of Parents and Teachers at Mattoon, on April 18.

The University of Illinois College of Medicine, Chicago, gave graduate courses in surgery, tuberculosis, medicine and neurology to the staff of the U. S. Veterans' Bureau Hospital at Maywood, April 1-18. The instructors are Drs. Lindon Seed, Benjamin Goldberg, Harry A. Singer and George B. Hassin.

News Notes

—The new Southwest General Hospital, Fifty-Seventh and South Wood streets, has been opened with Dr. George W. Funck as president of the staff.

Medical Schools, Classes or Fraternities desiring to have a banquet during the 79th Annual Meeting in Peoria, should arrange through the banquet committee, Dr. C. U. Collins, Peoria, Chairman, for same. Wednesday noon, May 22, 1929, has been left open for these dinners, as there will be nothing scheduled in the way of meetings Wednesday afternoon, until the Oration in Surgery, at 2:00 P. M.

—About 135 families living near North Crawford and Peterson avenues, Chicago, were ordered to be vaccinated by the health department when it was discovered that their milk man (who had never been vaccinated) had an advanced case of smallpox.

—A \$300,000 sanatorium for children with heart disease is to be erected on the site of the old La Rabida Sanatorium in Jackson Park. The new building will be a replica of La Rabida, a monastery at Palos, Spain, where Christopher Columbus took refuge while planning his first voyage to America.

—The State Department of Health wishes to call the attention of all licensed physicians in Illinois to the laxness of reporting births.

A recent survey shows that unless this condition is corrected promptly, the State will be dropped from the registration area. This would be a most unfortunate happening and would place Illinois in an unfavorable light before the country. Physicians are urged to report their birth cases promptly.

—St. Anthony's Hospital, Rock Island, held its second annual clinic, April 24-25. The first day was given to demonstration of "Controllable Spinal Anesthesia and Conduction Anesthesia" by Dr. George P. Pitkin, Bergenfield, N. J., and the second day to lectures and dry clinics by Drs. Géza de Takáts, Chicago, on "Injection Treatment of Varicose Veins"; Raymond W. McNealy, Chicago, "Surgery of the Peripheral Blood Vessels"; James G. Carr, Jr., Chicago, "Treatment of Heart Disorders," and Sidney H. Easton, Peoria, "Congenital Clubfoot."

—Cardinal Mundelein announces the establishment of a 300 bed maternity hospital for white Catholic married women in the ten story Lakota Hotel, Michigan Avenue and Thirtieth Street, which is being remodeled. Complete obstetric care and a twenty-four hour service will be provided for a fee of \$50. This, the *Bulletin* of the Chicago Medical Society says, is not expected to cover the cost of the service, as provision is

to be made to care for all children in the family under 10 years of age while the mother is in the hospital. The institution is intended as an answer to birth control propaganda among families in this diocese.

—The Chicago Medical Society has again arranged to hold a two weeks' series of clinics at Cook County Hospital, June 17-29, which will be given by members of the staff and for which a registration fee of \$10 will be charged to cover the cost. The work will be confined largely to general medicine and surgery. It will start at 8 a. m. and the last clinic of the day will be held at 3 p. m.; each clinic will last an hour. Two amphitheatres will be used simultaneously, so there will be four medical and four surgical clinics daily. Further information will be given on request to the summer clinics committee, Chicago Medical Society, 185 North Wabash Avenue.

—Dr. Andy Hall, recently installed state health officer, announced in an interview, April 11, that the policy of the health department would be an aggressive battle against disease in co-operation with the medical profession, every available resource consistent with economy being used in carrying on preventive measures, but treatment and cure being left strictly to the private physician. There is plenty of preventive work to do, he said, with diphtheria killing annually more than 500 children who could be saved through the use of toxin-antitoxin, with accidents causing nearly 6,000 deaths every year, with 4,000 of the 20,000 patients in state institutions there because of disease brought on through ignorant indiscretion, and with other preventable diseases causing 150,000 cases of illness annually. Dr. Hall believes that great results can be secured in the reduction of disease and the prolongation of life by applying the principles of preventive medicine to the people of Illinois in a way that will bring into play the harmonious cooperation of the practicing physician.

—According to the Chicago Heart Association, seventeen heart clinics in nine Chicago dispensaries cared for 6,580 patients during 1928, of whom 2,077 were children, and 2,546 were new admissions. In 37 per cent of the 1,904 patients discharged during the year the responsibility of the clinic was considered ended; 16.3 per cent of the patients discharged were unable or unwilling to cooperate; 8.7 per cent died; 19.4 per cent were lost track of, and 18.5 per cent were

turned over to private physicians or dispensaries near their homes. Of the 6,580 patients, 57 per cent were given routine "follow-up"; only 4.8 per cent of the most urgent cases were referred to the convalescent care service on account of a shortage of beds. Each of the nine dispensaries has a chief and from two to eight assistants, while all the clinics have social workers and most of them volunteer clinic aids. Fifty-three physicians work in the seventeen clinics.

—In a radius of 50 miles from State and Madison streets, there are 348 health units in operation. They work under 101 agencies liable to the governments of forty cities, twenty-three towns, 138 villages, 125 townships, five counties and four states. Intricacy, complexity, chaos and confusion are terms used in a 350 page report to describe the administration of public health in the Chicago region by Spencer D. Parratt, who has studied this district for two years under the direction of Prof. Charles E. Merriam, L.L.D., of the University of Chicago. A solution of the conflict, inefficiency and waste in the present organization of so many health units is proposed in the formation of a regional board of health by voluntary contact with the states of Illinois, Wisconsin, Indiana and Michigan. Mr. Parratt says that some one authoritative and unified agency must be set up to administer all phases of public health work for the "natural unity" of Chicago and its satellite communities. The report praises the work of the health department of the city of Chicago and the assistance rendered by the U. S. Public Health Service, but censures the smaller communities outside the city limits. The creation of the Chicago Municipal Tuberculosis Sanitarium, however, has destroyed, it is said, the proportion and balance of Chicago's health program. The Chicago Municipal Tuberculosis Sanitarium is said to receive each year in money from taxes more than the entire city health department to fight all other diseases combined. For several years after its creation there was an increased reporting of tuberculosis cases and far better hospitalization and supervision of cases, resulting in a decline in the tuberculosis death rate, but since 1922 the death rate has come up considerably and all indexes show decreased activity, although the budget has increased 62 per cent. Mr. Parratt says further, concerning the numerous health organizations in this area, that the infant, maternity and preschool hygiene pro-

grams are actually hindered by the present organization. The confusion and clash of the present system is more clearly defined in the milk and food protection situation, in which the small local agencies prove entirely inadequate. In the water supply and sewage disposal, there is absolute necessity for close cooperation in all sections of this metropolitan region. Separate units still empty raw or poorly treated sewage into natural water courses and many of them use doubtful sources for a water supply when a safe supply might be added with slight effort.

—The American Pharmaceutical Manufacturers Association annual meeting will be held June 3-6, at Chamberlin, Vanderbilt Hotel, Old Point Comfort, Va. Distribution and publicity will be leading subjects of discussion. Canadian and British chemical manufacturers have been invited to attend.

—Ground was broken, April 19, at Illinois College, Jacksonville, for the Baxter Clubhouse. This building, donated by Doctor and Mrs. George Edwin Baxter of Chicago, is expected to be completed before the opening of school next fall and represents an investment of \$70,000.

—The tenth annual meeting of the medical staff was held April 16, 1929, at the Mt. Sinai Hospital, Chicago.

The president, Dr. M. Lewison, in his annual report, reviewed the progress of the Mt. Sinai Hospital during the first ten years of its existence, and noted with much satisfaction its present position as a health and medical center in the community. Its recognition by the American Medical Association and the American College of Surgeons was pointed out, as was also the large amount of research work carried on at the hospital.

Dr. Lewison stressed the fact that the hospital has now outgrown its physical facilities, there being a very large waiting list constantly, both in the hospital and the out-patient department. The overcrowded condition in the dispensary and the inadequate facilities of the nurses' home were discussed. It was decided that an immediate campaign be launched for six additional stories to the present hospital, a new nurses' home and a clinic building where the ambulant poor may be treated.

At the election of officers which ensued, the following were elected:

Dr. Maurice Lewison, permanent honorary president.

Dr. Victor L. Schrager, president.

Dr. Charles Newberger, vice-president.

Dr. Harry J. Isaacs, secretary.

After the election, Dr. Lewison was presented with a beautiful gold watch, in appreciation of his many years of faithful services to the hospital, as president of the medical staff.

Deaths

EDWIN BURT BECKWITH, Chicago; Hering Medical College, Chicago, 1908; aged 58; died in March, of cirrhosis of the liver and mitral stenosis.

ELLEN MARIA BERGSTROM, Chicago; Chicago Medical School, 1923; aged 50; died, March 8, of acute dilatation of the heart and nephritis.

JESSE F. BOONE, Chicago; Hahnemann Medical College and Hospital, Chicago, 1912; served during the World War; on the staffs of the Chicago Memorial and Jackson Park hospitals; aged 45; died, April 2, of heart disease, nephritis and uremia.

WILLIAM HERBERT BOONE, Hopedale, Ill.; Rush Medical College, Chicago, 1900; aged 52; died, March 12, of pneumonia.

JOHN W. BOTKIN, Jacksonville, Ill. (licensed, Illinois, 1878); aged 84; died, March 13, of endocarditis and pneumonia.

JAMES M. FRASER, Cairo, Ill.; McGill University Faculty of Medicine, Montreal, 1887; aged 68; died, April 8, at St. Bernards hospital, of chronic myocarditis.

EDWARD FORD GAVIN, Waukegan, Ill.; Rush Medical College, Chicago, 1890; member of the American Academy of Ophthalmology and Oto-Laryngology; on the staff of the Victory Memorial Hospital; aged 65; died suddenly, March 23, of heart disease.

CARROLL ORWIG GETTY, Chicago; Rush Medical College, Chicago, 1914; formerly associate in medicine at his alma mater, and assistant in physiology. University of Michigan Medical School, Ann Arbor; member of the Illinois State Medical Society; on the staff of the John B. Murphy Hospital and the Ravenswood Hospital; aged 39; died, April 4, at the Augustana Hospital, of gangrenous appendicitis and embolism.

JACOB GREENSPAN, Chicago; Jenner Medical College, Chicago, 1915; formerly on the staff of the Lincoln (Ill.) State School and Colony; aged 46; died, March 17, of pulmonary abscess and gastric ulcer.

WILLIAM FRANKLIN GRINSTEAD, Cairo, Ill.; Vanderbilt University School of Medicine, Nashville, 1877; and University of Nashville, Medical Department, 1881; dean of the profession in Southern Illinois and former president of the Illinois State Medical Society, who celebrated fifty years in practice in December, 1927; aged 75; died, April 1, after an illness of several months in St. Mary's Infirmary.

CLARENCE ALFRED KROGH, Chicago; Rush Medical

College, Chicago, 1904; aged 54; died, April 2, of chronic nephritis.

ARTHUR LOEWY, Oak Park, Ill.; College of Physicians and Surgeons, Chicago, 1889; formerly assistant clinical professor of medicine, Bennett Medical College, Chicago; president of the staff of the Oak Park Hospital; aged 61; died, March 25, of pleurisy and myocarditis.

ANDREW J. LYERLY, Jonesboro, Ill.; Missouri Medical College, St. Louis, 1890; past president of the Union County Medical Society; formerly county coroner; aged 63; died March 23, of pneumonia.

I. NEWTON CHARLES MCKINNEY, Camargo, Ill.; University of Illinois College of Medicine, Chicago, 1902; member of the Illinois State Medical Society; aged 57; died, February 14, at the Sarah A. Jarman Hospital, Tuscola, of carcinoma of the liver.

ALBERT G. MOUNTZ, Chauncey, Ill.; American Medical College, St. Louis, 1878; aged 80; died, February 21, of pneumonia.

DANIEL MORTIMER OTTIS, Springfield, Ill.; Rush Medical College, Chicago, 1895 past president of the Sangamon County Medical Society; served during the World War; on the staff of the Springfield Hospital; aged 58; died, March 16, at St. John's Hospital, of cerebral hemorrhage.

W. VINCENT PARKHILL, Hillsboro, Ill.; National University of Arts and Sciences, Medical Department, St. Louis, 1878; who practiced 45 years in Irving; a member of Illinois State Medical Society; aged 75; died, March 17, of septic sore throat, following severe injuries received in January when his automobile was struck by a Big Four train.

JOHN PHILIP PFEIFER, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; Rush Medical College, Chicago, 1893; on the staff of St. Mary of Nazareth Hospital; aged 71; died, April 6, of myocarditis and chronic nephritis.

ALEXANDER PIETRZYKOWSKI, Chicago; College of Medicine and Surgery (Psycho-Medical), Chicago, 1901; aged 56; died, March 11, of heart disease and nephritis.

JAMES WILSON ROBINSON, Waltonville, Ill.; Barnes Medical College, St. Louis, 1897; aged 54; died, March 24, at the Mount Vernon (Ill.) Hospital, of cerebrospinal meningitis.

OWEN M. SLATER, Atwood, Ill.; University of Illinois, College of Medicine, 1895; a member of Illinois State Medical Society; aged 67; died, suddenly in his office, April 2, of cerebral hemorrhage.

ANTHONY J. RAUSCH, Chicago; Chicago Medical School, 1921; aged about 33; died in March, of acute hemorrhage pancreatitis and empyema of the gall-bladder.

HEZEKIAH MARTIN VAUGHT, Greenville, Ill.; University of Louisville (Ky.) School of Medicine, 1882; aged 71; died, February 15, at Los Angeles, of uremia and diabetes mellitus.

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Editorial

MEDICAL ETHICS THE SALVATION OF THE PATIENT

Medicine is the only profession whose conscientious labors are its own undoing. At the same time the code of ethics under which the medical profession operates constitutes a powerful force for the benefit of mankind. Elements of that code demand the highest ideals, the greatest generosity and the utmost self-sacrifice from any physician who can be classified as "ethical." A crime against the code of ethics is a crime against the highest ideals of human honor.

That code guarantees that any discovery of value in combating ills of mankind will be available to every doctor everywhere and thus available for sick people everywhere. No doctor can patent a procedure or a treatment and compel sick humanity to come to him. He is bound under the code to give his discovery to the profession in order that it may become available to sick humanity.

The code guarantees to sick people the right to choose their physicians. The code stands for *fair ethical competition between members of the profession and this principle has been regarded in America as one of the greatest possible incentives to progress and achievement.*

Some people think that if doctors were permitted to advertise that the public would be assisted thereby as to competent choice of a personal physician. This cannot possibly be true.

Reading the cancer cures, rupture cures, and forty-seven varieties of nauseous advertisements and cure-alls that appear daily in the newspapers would convince one of the danger of violation of the code of ethics from the advertising standpoint. Not necessarily the doctor with the most ability but the unprincipled men frequently having the most money and least skill could make claims in the press of superior ability. The public would be gullible enough to be guided by the advertisement occupying the greatest space and

making claims of the greatest cures. If one doctor were permitted to advertise all doctors would be compelled to advertise. The public would be less able to judge the merit of the physicians than it is under the present system.

The resultant stupendous cost of advertising under suspension of the code of ethics would necessarily have to be taxed onto the cost of doing business. As in every other line of human endeavor the cost must necessarily be passed on to the ultimate consumer and would therefore be taken out of the pockets of the patients as a necessary cost of the overhead of the doctor's operating expense.

The code of ethics is the greatest protection for the patient that can possibly be conceived. If any group of people on earth should be interested in preserving the Hippocratic oath on the principles of medical ethics as now constituted it should be the sick public. The best medical service possible to the public is prescribed under the conditions of the code.

IT HAPPENS EVERY DAY IN THE LIFE OF PHYSICIANS MEDICAL ETIQUETTE IS THE SALVATION OF THE PATIENT

Certain interests have made an unfortunate attempt to divert the attention of the public from the real issues in the ouster proceedings of Dr. Louis E. Schmidt from the Chicago Medical Society. Further, deplorable indeed is the endeavor on the part of these same interests to throw sand into the eyes of the public and so persuade the public at large that Dr. Schmidt's ouster was based upon economic rather than ethical factors.

Economics unfortunately must enter into the lives of physicians since man can not live by science alone. Though miracles are expected of physicians theirs is but a mortal body through which almost superhuman faculties are supposed to be exercised. Nobody endows a doctor. Wealth at large seems inclined to endow anything and everything that will tend to take science out of the hands of its votaries and put it in the hands of the lay population, with the same lack of perspective that gives a spoiled child an expensive watch to batter about as a plaything. Though ethics and ethics alone was the motif back of the Schmidt ouster, the very fact that

this must run tantamount to economics makes a word on the situation a paramount need.

The oath of Hippocrates, that has been the credo of the ethical physician since the earliest days of civilization held as a physician's *sine qua non*, his ethical ideas. One of the strictest points of ethical etiquette has been the keeping apart of the ethical physician from lay institutions whose advertising was based upon exploitation of surgical or medical skill. To attempt to explain medical ethics to the man-in-the-street is about as justified as to hold a clinic on canon law on the street corners.

Time was when the "medicine men" of the tribes possessed sovereign rights of tribute scarcely less than those of kings and rulers. That day has passed as it should have done. Changing modes have brought about changing systems of payment, for those who serve must be paid or how can they live to serve. Even a tyrant feeds his slaves. If the charge is made that medical demands for a medical income place medicine on a commercial footing then the very height of the standards of medicine as a business should be the index of the calibre of its payment and the heads of the medical profession should constitute the board of directors to set standards for the conduct of this business and how and in what terms payment should be made. Nobody ever heard any protest made as to the ouster of a man from the stock exchange or the board of trade, or a sports association, or a bar association or a commercial organization of any nature because "he was making too much money." Yet in the most ethical organization under the sun, outside of the churches and perhaps the law, because the heads try and condemn a man on ethical points the cry is made that it was "economic," prejudice rather than ethical tenets that influenced the verdict.

If it had been economic, it would have been small business of the public at large. As a matter of fact it wasn't, but here are a few of the reasons that would have made even an economic ouster none of the business of the lay critics. Since the ouster was one made from ethical standards alone, these facts stand out as even additional background.

Doctors, like members of every other trade or profession are obliged to live under apparently standard conditions. The doctor must pay rent,

taxes, buy clothes, feed and educate his children and support his wife. Medicine if a business is ingrained with altruism of the highest kind; a business imbued with the spirit of service to humanity at a sacrifice ranging from a decrease in income to the giving of one's health and life. If medicine be considered a business, then it is a medical business, and as such its high ideals and standards must be maintained.

People are not being deprived of either medical or surgical aid because of lack of funds. Charity was never so free and so widely distributed as at present. Indeed charity is being literally foisted upon the public without in many instances either excuse or necessity.

Literally speaking there has become an epidemic of charity distribution among a number of rich lay people, whose highly impressionable nervous systems and hearts frequently get the better of their judgment. Such citizens establish philanthropic medical institutes and free health centers for all sorts of persons rich and poor alike, even for persons with a minimum earning capacity of six thousand dollars a year. The average income of the physicians in the United States is not as high as the six thousand per year just quoted and in charity service almost any doctor gives the general public another \$6,000 per annum.

The Doctor's middle name is charity. Garri-son in his history of medicine tells us that in the year 490 B. C. the great philosopher and physician, Empedocles, expressed his relation to the poor in the following verse:

"Thou art my friend; to thee,
All knowledge that I have,
All skill I wield are free.

"Twenty-two hundred years after this verse was written, another physician, by the name of John Hunter, in a note given to a patient to take to another physician by the name of William Hunter, wrote, 'Do not know the bearer's case. He has no money. He is desirous of your opinion. Do all you can for him.' Similar notes are written daily by thousands of physicians in the year 1929, and they are not advertised either individually or collectively.

"A question of medical ethics and its importance may perhaps best be summarized in the words of John St. Loe Trachey, in the River of

Life: 'No profession is more exposed to the temptation to forget honor, humanity, and kindness than the medical profession and none in which the exploitation of human suffering is easier. Yet there is none in which the temptation is more triumphantly withstood. Let this be remembered by the public when they feel inclined to sneer at medical etiquette, as if it were a code for maintaining selfishness and enrichment. Medical etiquette is the salvation of the patient.'"

And this "medical etiquette" is all based upon the code of ethics, upon which the Schmidt ouster is grounded.

ANOTHER ECHO IN THE DOCTOR SCHMIDT CASE COMMENT BY SECTARIAN PRESS UPHOLDS SCHMIDT DECISION ON GENERIC BASIS

It is gratifying to note how large a proportion of the lay press is beginning to rally to the support of the decision of the Chicago Medical Society in the decision in the Louis E. Schmidt case. Under date of April 27, "America" makes in part this editorial comment upon the action taken to expel Dr. Louis E. Schmidt from the Chicago Medical society.

That this advertising was the sole cause is not, however, clear. Private groups in the city of Chicago are now planning the erection of large hospitals, all of which will not only conduct public clinics, but offer medical and hospital attendance at prices considerably under the prevailing rate. Practising physicians, whose devotion to the best ideals of the profession cannot be impeached, are asking whether it is not possible to go too far in this direction. They are willing to give their services free, in cases of need, but they think that too low a rate of fees may result in creating a mendicant class, composed of patients who can pay, but who will not, as long as they need not.

The presence in some quarters, of physicians who degrade a noble profession to the level of a dishonest business, has brought unmerited censure upon the whole profession. *Even as the priest, so too the physician is a laborer worthy of his hire. Upon his preliminary training at college and in the professional school, he has*

expended thousands of dollars. On this investment he is entitled to a just return. He is entitled also to proper remuneration for his actual services. Whatever makes a fair return impossible must show positive and indubitable reasons for its continuance.

Many physicians of repute believe that the free clinic and hospital service has been carried somewhat too far. Wealthy philanthropists erect huge buildings for laboratories and hospitals, and found institutions which, because of their liberal endowments, are able to provide service either free or for a fee much lower than that which the physician in private practice, or the small institution, must necessarily ask in order to meet operating and living expenses. These facilities, it is said, divert patients who could easily pay the reasonable fee, to the institution in which there is no fee, or a smaller one.

Surely it should be possible for the clinics and the hospitals to exercise a larger degree of discrimination in admitting patients so that free service would be accorded to those only whose need is real. Every social agency learned long ago how easily an applicant may be pauperized. There can be no doubt that one of the sorest needs of the day is hospitals in which self-respecting people can receive treatment in return for fees in keeping with their very moderate means. It is to be hoped that the medical profession can devise a way of meeting this very real need without exposing any of its worthy members to the loss of a living wage. The physician's right to it is as undoubted as the right of any millhand in Carolina.

CHICAGO RETAIL DRUGGISTS' PUBLICATION UPHOLDS THE OUSTER OF DOCTOR SCHMIDT

The C. R. D. A. News, the official publication of the Chicago Retail Druggists Association, in its issue of April 27, carried an interesting statement from Mr. S. Gassel, 334 East 31st Street, relative to the recent public discussion of the Medical Society and its ethical activities. We quote:

"We druggists, who come so closely in contact with physicians, know far more of their problems and difficulties than the rank outsiders who are daily assailing them in the public press. We

ought accordingly to take a united stand in support of the physicians against such unwarranted public assaults upon their general practices and methods. These defenders of the public welfare have no more right to dictate the policies of the Medical Society than they would grant that society the right to dictate the policies of the various associations of their own businesses.

"The truth of the matter is that people who come in contact with physicians and understand their problems, as we druggists do, and who are not influenced by the thousands of dollars derived from the advertising of the Public Health Institute, as are our public spirited newspapers, are in strict accord with their policy.

"I challenge those 'select' citizens who deem it their duty to publicly condemn the medics, to compare the income tax returns of their poorest member with that of the wealthiest physician who makes his living from the legitimate practice of medicine."

THE HOUSE OF DELEGATES OF THE ILLINOIS STATE MEDICAL SOCIETY UPHOLDS THE OUSTER OF DOCTOR SCHMIDT

At the meeting of the Illinois State Medical Society at Peoria on Tuesday, May 21, the expulsion of Dr. Louis E. Schmidt from the Chicago Medical Society was upheld by the Council of the State Society and by the House of Delegates.

Dr. Schmidt's appeal was heard first by the Council which elected to have the appeal heard in writing. At the conclusion of the hearing the three Chicago members refrained from voting. The vote to uphold the action of the Chicago Medical Society was unanimous.

An appeal was taken to the House of Delegates by Dr. Schmidt, and after the appeal was heard the action of the State Council in upholding the action of the Chicago Medical Society was concurred in by a unanimous vote.

Another appeal to the Judicial Council of the American Medical Association is still available to Dr. Schmidt. The hearings before the State Society were on questions of law and procedure only, that is, the determination of the fact that the Chicago Medical Society conducted its hear-

ings in accordance with the provisions of the Constitutions and By-Laws.

The vote of ouster in both instances was unanimous.

CHICAGO NEWSPAPER GETS RIGHT ANGLE ON DOCTOR SCHMIDT CASE THE DOCTOR SCHMIDT CASE CHAL- LENGES THE AUTHORITY OF THE MEDICAL PROFESSION TO GOVERN ITS OWN AFFAIRS

The following editorial that appeared in the *Chicago Daily Journal* under date of May 23, 1929, calls attention to the fact that the trial of Dr. Louis E. Schmidt was based on ethical and not commercial reasons and that it was for ethical transgression that decision was made to expel him from membership in the Chicago Medical society.

DR. SCHMIDT TO APPEAL

In upholding the exulsion of Dr. Louis E. Schmidt by the Chicago Medical society, the Illinois State Medical society made it plain that the proceedings against the doctor were instituted solely because of a breach of medical ethics and not because of any economic question concerned. In Dr. Schmidt's case, the question of smaller fees and of free treatment naturally became involved because of the clinic maintained by the Illinois Social Hygiene league, of which he is president. In the public mind, the mistaken conviction has grown that Dr. Schmidt was being disciplined, even persecuted, because he offered medical treatment at a nominal fee.

It has been a tradition with the organized medical profession that doctors must not enter into competitive advertising. Steps to prevent cutthroat competition have been taken to protect not only the medical profession but the public as well. It is convincingly clear that the most skillful advertiser is not necessarily the best doctor, and that the busy medical commercial combine, with advertising manager and press agent, is not likely to make up in mass production what it might lack in care and thoroughness. Yet the power of advertising is such that the clever medical salesman might exploit the public to its own detriment.

Despite a sincere sympathy with the aims of Dr. Schmidt, whose competency has in no wise

been challenged by the action of the two medical societies which have banned him from membership, the public must realize the importance of a stern code of ethics as applied to the practice of medicine. Only by the application of such a code has the public been protected from quacks and charlatans who would enrich themselves on human gullibility. Only by uplifting the medical profession and keeping it on the high plane it has occupied for generations have the great modern advances in scientific medicine been made possible. Dr. Schmidt's offense seems trivial, indeed, to the lay mind, but in reality it challenges the authority of the medical profession to govern its own affairs.

Dr. Schmidt has announced that he will carry his case to the American Medical association, which meets at Portland, Ore., next month. Insisting that a limited amount of advertising is proper and ethical in offering the services of clinics and charitable hospitals to the poor, he will present what he considers a progressive, not a revolutionary, ethical code for the consideration of medical authorities from all over the land. If he secures vindication at the hands of the supreme court of his profession and the decisions of the lower courts are reversed, his friends in Chicago will rejoice to see him reinstated. But lay opinion must, in any event, concede to the physicians the right and the good sense to run their profession so that the interests of humanity, to which their lives are devoted, will be best served.

BEWARE OF MEDICAL IMPOSTER

A man giving the name of G. Schultz, Peoria, Illinois, representing himself to be field manager for the World Insurance Company of Omaha, Nebraska, is traveling about the country writing insurance. This man is a fraud. A state warrant was issued for him May 27th, under the name of August Schultz (alias G. Schultz). Any one having information relative to this gentleman please notify State's Attorney Homer Williams, Carthage, Hancock County, Illinois.

DESCRIPTION

Distinctive marks. Weight 160-190. Height, 5 ft. 6 in.-5 ft. 8 in. Age about 50. Eyes gray, wore dark shell-rimmed glasses especially when writing. High forehead, rather broad laterally.

Face a trifle long. Smooth face. Nose a little Roman. Claimed to be Irish descendant. Hair dark, quite streaked with gray, almost gray, combed pompadour. Left leg, metal ankle brace extending from sole of foot to knee joint outside of leg under trousers, displayed the injured member as a talking point for insurance business, alleging to be automobile accident in 1927-28, favored the limb a trifle, a very slight limp. His manner is business-like. No scars or marks otherwise noticeable. Wore an Oxford gray suit, gray top coat and crush hat.

Earl Cooper, M. D.,
Augusta, Illinois.

FIVE THOUSAND ACTIVE VOLUNTEER HEALTH OFFICERS WANTED TO FIGHT DIPHTHERIA IN CHICAGO

Last December, the Commissioner of Health appealed to the medical profession to protect the children of Chicago against diphtheria, because he believed it was primarily the function of the family physician to render this service.

600,000 bulletins, "Chicago's Health," on diphtheria were distributed to children in the schools.

5,140 personal letters were sent to physicians.

1,903 physicians replied; 427 were not in general practice.

1,476 physicians sent to their patients 32,612 diphtheria warning letters.

12,279 replies were received, which resulted in the following number of children being immunized:

January	14,695
February	497
March	52
April	2

Sixty thousand children in Chicago have their first birthday every year and should be protected at this time.

If the protection of our children against diphtheria is to be kept in the hands of private physicians, redoubled efforts on the part of the doctors themselves will be necessary.

Diphtheria can be exterminated as shown by the experience of a number of American cities.

Dr. Kegel still believes this preventive work is the duty of the private physician; however, unless Chicago physicians show an increased willingness and interest in taking up this vital work, and unless sufficient progress is made to insure the continued protection of Chicago's children against diphtheria, it will become necessary for the Chicago Department of Health to supplement the work of the private physicians in the administration of diphtheria toxin-antitoxin.

Correspondence

INSTITUTION FOR DIAGNOSIS ONLY

To the Editor: The following data relative to the Physicians and Surgeons Institution is hereby submitted for your readers' information.

Out of the morass of controversy involving a possible solution of the economic problems tangent to medical and hospital service for persons of moderate means the purposed diagnostic center sponsored by a group of ethical physicians would appear to afford certain facilities of undisputed value in caring for one angle of definite expense where illness is concerned.

This group would seem to have taken to heart the idea of a possible establishment of a diagnostic center under the auspices of each branch of the Chicago Medical Society, and running throughout Cook County.

To this end there is being established on the near north side of Chicago, within walking distance of the business center of the city, a diagnostic center that it is expected will partially answer the demand of the medical profession and of the general public for the procural of a complete medical and surgical diagnosis at a reasonably moderate cost.

This Center is known as the Physicians and Surgeons Institution of Chicago and is located at the northeast corner of La Salle and Maple Streets.

Operation of the center, according to announcements, will feature the filling of certain wants. Mentioned among these are:

(1) "Management by a board of directors of laymen who are responsible for the business management of the physical properties.

(2) "The active management of the medical end will be vested in an active Medical Advisory Board with its representatives chosen from each department of medicine. This Advisory Board will formulate the by-laws and rules governing the medical procedure. There will be a Scientific Director, Associate Director, Director of Co-ordinated Diagnosis, Secretary of the Board, Judiciary Medical Counselor on points of ethics and a Chairman of the Medical Membership Committee.

(3) "In the various diagnostic units there will be employed a Full Time Staff selected with reference to character and to ability. This Staff

will represent the most scientific and skillful personnel obtainable. As this will be a Full Time Staff the interest of these men will be purely Diagnostic as they will neither treat nor operate. **THE PURPOSE OF THE DIAGNOSTIC CENTRE IS DIAGNOSIS AND IT WILL TREAT NO ONE.**

"There will also be available to the DIAGNOSTIC CENTRE, selected from members and associates, CONSULTANTS in each and every department. THESE CONSULTANTS will rotate in their respective departments and will be called in on *each and every case* coming to the DIAGNOSTIC CENTRE to consult with the Full Time Staff before the diagnosis is complete.

(4) "ALL PATIENTS REFERRED TO THE DIAGNOSTIC CENTRE WILL BE RETURNED TO THE PHYSICIAN HAVING REFERRED THE CASE TOGETHER WITH THE COMPLETE FINDINGS and in instances wherein by such physician a request has been made for course of treatment, then this doctor will be furnished indicated therapy together with the latest literature covering this and applicable to that particular case.

(5) "Patients presenting themselves of their own volition for diagnosis and refusing to name any physician to whom findings may be sent will not be referred, by the DIAGNOSIS CENTRE, to any individual doctor but, on the contrary, will be asked to make a selection of some physician to whom findings will be sent.

(6) "Members of the Diagnostic Centre, comprising those medical men actively engaged in general practice, while not consultants to the DIAGNOSTIC CENTRE, shall yet be accorded all courtesies and facilities of the DIAGNOSTIC CENTRE. These members will have available to their hand various demonstrations which will be arranged upon request, such as pathologic or radiologic exhibits, histologic slides, bacteriologic demonstrations, etc., or work in conjunction with the CONSULTANTS in the specialty of their selection."

Establishment of such a medical center naturally arouses many questions in the minds of the medical profession at large.

Whether there is a real need for such an institution is evidenced partially at least by the recent agitation for a series of medical centers throughout Cook County, on the part of many

prominent medical men; by the annual pilgrimages of hundreds of thousands of citizens to outside clinics for diagnostic purposes.

This organization will stop at diagnosis and will not give any treatment. Patients will be returned to their family physicians, and if there is no family physician patients will be counselled to select one to whom the diagnostic report will be sent. No diagnostic reports will be given to patients.

No individual doctor's name will be mentioned to patrons. Physicians may accompany and indeed will be encouraged to accompany their patients through the institution or may safely send them.

Ethical publicity along traditional lines of organized medicine will be the only advertising endeavor.

The physicians connected with the Institution are members of the Chicago Medical Society, Illinois State Medical Society and the American Medical Association. Doctors connected with the staffs at practically all the leading hospitals of Chicago and the Dean of at least one of the medical colleges of Chicago make up the personnel of the Institution.

In Chicago, Oak Park and Evanston there are sixty general hospitals registered or approved by the American Medical Association that have fifty-one or more beds. This group was listed in the Journal of March 30, 1929. Medical men connected with the purposed diagnostic center hold staff positions in fifty-one of these hospitals. Of the nine others in which it would appear that members of the diagnostic center are not associated, four are located in the far south side, one is in Evanston, and three have been completed since this data was compiled.

Other statistical data as to the standing of the men connected with the institution includes these figures as to members and their affiliations.

25 hold or have held positions as Chief of Staff or Chief of specialty in these hospitals.

294 staff positions are held or have been held by them.

3 are on Staffs of Consultation.

15 hold or have held staff positions at Special Hospitals.

2 have held or hold places as Chief of Special Hospital.

At the 4 Class "A" medical Schools in Chi-

cago: 83 members hold or have held teaching positions.

At the post graduate schools 14 men hold or have held teaching positions.

Among the medical societies members are officers or past officers as follows:

GENERAL SOCIETIES

	President	Other Officers
Local	7	8
State	6	9
National	1	1

SPECIAL SCIENTIFIC SOCIETIES

Local	15	5
National	4	3
International	1	..

Editors of Medical Publications..... 3

Directors or Medical Supervisors of Medical or Surgical Institutions11

Heads of Medical Departments of Industries of Municipal Divisions20

GEORGE WALTERS, General Manager.

AMERICAN MEDICAL ASSOCIATION ANNUAL MEETING, PORTLAND, ORE., JULY 8-12, 1928

OFFICIAL ROUTES, CHICAGO TO PORTLAND, FOR THE ILLINOIS MEDICAL SOCIETY

The Chicago & North Western Railway Co. has been named as the official route from Chicago for members of the Illinois State Medical Society, in connection with the annual meeting at Portland, Ore.

The following routes are suggested as the most attractive from the standpoint of scenic attractions and convenient arrival at the Convention City:

Schedule No. 1 "Portland Limited"

Lv. Chicago—C. & N. W. Ry....	8:30 P. M.	Fri., July 5
Ar. Omaha—C. & N. W. Ry.....	8:10 A. M.	Sat., July 6
Lv. Omaha—Union Pacific	9:00 A. M.	Sat., July 6
Ar. Cheyenne—Union Pacific	8:00 P. M.	Sat., July 6
Lv. Cheyenne—Union Pacific	8:15 P. M.	Sat., July 6
Ar. Huntington—Union Pacific	9:40 P. M.	Sun., July 7
Lv. Huntington—Union Pacific....	9:40 P. M.	Sun., July 7
Ar. Portland—Union Pacific	9:30 A. M.	Mon., July 8

Schedule No. 2 "Continental Limited"

Lv. Chicago—C. & N. W. Ry.....	11:20 P. M.	Thurs. July 4
Ar. Omaha—C. & N. W. Ry.....	12:05 P. M.	Fri., July 5
Lv. Omaha—Union Pacific	12:30 P. M.	Fri., July 5
Ar. Cheyenne—Union Pacific	1:30 A. M.	Sat., July 6
Lv. Cheyenne—Union Pacific	1:40 A. M.	Sat., July 6
Ar. Huntington—Union Pacific ..	3:52 A. M.	Sun., July 7
Lv. Huntington—Union Pacific	3:52 A. M.	Sun., July 7
Ar. Portland—Union Pacific	5:20 P. M.	Sun., July 7

Schedule No. 3

Lv. Chicago—C. & N. W. Ry.....	10:00 P. M.	Tues., July 2
Ar. St. Paul—C. & N. W. Ry.....	9:30 A. M.	Wed., July 3
Lv. St. Paul—Soo Line	11:40 A. M.	Wed., July 3
Ar. Banff—Canadian Pacific	8:55 A. M.	Fri., July 5
Lv. Banff—Canadian Pacific.....	8:40 P. M.	Fri., July 5
Ar. Lake Louise—Can. Pacific....	10:15 P. M.	Fri., July 5
Lv. Lake Louise—Can. Pacific....	10:40 A. M.	Sat., July 6
Ar. Vancouver—Can. Pacific	7:50 A. M.	Sun., July 7
Lv. Vancouver—Can. Pac. S. S. Co.	10:30 A. M.	Sun., July 7

Ar. Victoria—Can. Pac. S. S. Co.	2:30 P. M.	Sun., July 7
Lv. Victoria—Can. Pac. S. S. Co.	4:30 P. M.	Sun., July 7
Ar. Seattle—Can. Pac. S. S. Co....	9:30 P. M.	Sun., July 7
Lv. Seattle—Union Pacific	11:15 P. M.	Sun., July 7
Ar. Portland—Union Pacific	6:15 A. M.	Mon., July 8

Schedule No. 4

Lv. Chicago—C. & N. W. Ry....	5:40 P. M.	Tues., July 2
Ar. Duluth—C. & N. W. Ry.....	8:15 A. M.	Wed., July 3
Lv. Duluth—Canadian National...	9:00 A. M.	Wed., July 3
Ar. Winnipeg—Canadian National.	8:50 P. M.	Wed., July 3
Lv. Winnipeg—Canadian National.	10:30 P. M.	Wed., July 3
Ar. Jasper Park—Can. National..	8:40 A. M.	Fri., July 5
Lv. Jasper Park—Can. National..	8:20 A. M.	Sat., July 6
Ar. Vancouver—Can. National....	7:25 A. M.	Sun., July 7
Lv. Vancouver—Can. Pac. S. S. Co.	10:30 A. M.	Sun., July 7
Ar. Victoria—Can. Pac. S. S. Co.	2:30 P. M.	Sun., July 7
Lv. Victoria—Can. Pac. S. S. Co.	4:30 P. M.	Sun., July 7
Ar. Seattle—Can. Pac. S. S. Co....	9:30 P. M.	Sun., July 7
Lv. Seattle—Union Pacific	11:15 P. M.	Sun., July 7
Ar. Portland—Union Pacific	6:15 A. M.	Mon., July 8

The many additional attractive routes may be arranged to include various points of interest.

Very low summer tourist fares will be in effect from all points to Portland for this occasion, with a wide choice of return routes. The round trip fare going and returning via any direct route from Chicago will be \$90.30, or tickets may be routed in one direction through California, for \$18.00 additional, or \$108.30 from Chicago. Correspondingly low fares will be in effect from all points and such tickets will permit stopover at any point either going or returning, within final limit of October 31st. The Pullman fares applying from Chicago to Portland, Seattle, or Vancouver, are as follows: Lower berth, \$23.63; Upper berth, \$18.90; Compartment, \$66.75; Drawing Room \$84.00. Slightly higher Pullman fares apply where stopovers are made.

Mr. H. G. Van Winkle, General Agent, C. & N. W. Railway, 148 S. Clark Street, Chicago, will be pleased to assist members in securing reservations or furnish any additional information regarding Pacific Coast travel. Write for illustrated literature regarding any point in which you are interested.

STRATEGY

Sooner or later the truth comes out. For instance, Al came back from the war a major. Now some of his friends whisper that his promotion came about through his happy answer to a question.

"What is the strategy of war? Give me an illustration," asked the examining board when Al went up for promotion.

"Strategy," replied Al promptly, "is when you don't let the enemy know you're out of ammunition, but keep on firing."

BRAVADO

"Yes," said the dentist, "to insure painless extraction, you'll have to take gas, and that's fifty cents extra."

"Oh," said Casey, "I guess the old way'll be best; never mind the gas."

"You're a brave man," said the dentist.

"Oh!" said Casey, "it ain't me that's got the tooth; it's my wife."

Original Articles

THE GENERAL PRACTITIONER*

JOHN E. TUITE, M. D.

President, Illinois State Medical Society

ROCKFORD, ILL.

"Good wine needs no bush" says the old saw. I suppose that after generations of service as guide, philosopher, friend and medico, the general practitioner can dispense with a champion. As a beneficiary in my youth of the kindly ministrations of the general practitioner, and now as a member of that guild which I delight to honor, it seems incumbent to say a word of greeting to the rank and file of a noble craft. There are those among us so short sighted as to think that instead of greeting the general practitioner as a still useful member of the body politic, he should be given a valedictory. For some there are who mistakenly cherish the notion that the general practitioner is on his way out and that he shall soon disappear.

I am not one to stand in the way of progress. Neither would I elect to play the part of "Sir Oracle," who, as Shakespeare says, has a visage that "doth cream and mantle as a standing pond" and who seems to say "when I ope my mouth, let no dog bark." Great is my desire to have it known that I am convinced that the general practitioner, the old family doctor who knows his people, their heredity, their proclivities, their possibilities, and who can gauge their psychological as well as their pathological content, is the one who should decide the question of specialization.

Brothers of the profession, what confronts us today? Great office buildings filled too often with self-nominated specialists, technicians, laboratory men, all unmindful of the human appeal of the ailing—entirely alien to sympathy, to ideals to altruism. In my capacity as President of your association, for which honor I shall ever be grateful, I protest against the tendency to make a technicians' trade out of what has always been the noblest of the purely human professions.

My cue is taken from highly respectable sources. I follow the tradition of Billings, Senn, Murphy—and, to rise to genuine heights in this

matter—Osler, who virtually laid down his life as a result of fatigues undergone in the interest of general practice. Osler was a specialist, yes, but he had spent a novitiate in general practice under his model practitioner, James Bovell. Osler was a teacher who rose to the very pinnacle of such proficiency as was well known in his day but I feel quite sure that the great Osler would gladly subscribe to the dictum of Dr. Frank Billings, himself a good specialist, who says quite simply and directly that "in the majority of cases the painstaking general practitioner has been able to make accurate diagnosis and to treat scientifically, and that too, without too expensive equipment." M. L. Harris, president-elect of the A. M. A., said recently that the general practitioner who displays industry, will diagnose and treat 97 per cent. of the cases that come to him. It would seem that the men of the finer traditions and of the most dependable science are opposed to the practice of hasty reference to the self-chosen specialist when the patient could be better served by the family doctor. Or at least the family doctor who knows the patient is the man who should be given the opportunity to nominate the specialist and to determine whether the self diagnosis of appendicitis is after all one of the twinges of locomotor ataxia, or "what have you"?

All great advances bear within them the seeds of new problems. New methods of transportation expedite carrying of rural patients to urban centers. This is as it should be. Yet this fact has a demoralizing effect on the general practitioner who chooses the rural districts for location. Also, in these days of good roads, telephones, automobiles and airplanes, the larger centers can dispense urban service to rural communities.

The printed word has its effect in making the general practitioner a somewhat negligible quantity in the community life. With all the exaggerated reports of laboratory studies that appear in the daily press; in the public health programs and in similar mediums—all an advertising that is prejudicial to ethical medical practice and almost absolutely vicious,—the laity is fair game for all experimenters. I say to you doctors today, that we have a function in society in the need for protecting gullible laymen against the conspiracy of unwarranted specialization.

*President's Address Seventy-ninth Annual Meeting, Peoria, Illinois, May, 1929.

I would not be understood as in any way casting discredit upon those ethical physicians whose practice is limited to specialization. Those men are much needed and I salute them, but I am old fashioned enough to believe that no man can properly and successfully specialize until he has spent at least five years in general practice. This experience gives any doctor a broader view and reduces the number of self-styled specialists to a minimum. I like to feel that a specialist is a limb of the great tree; body and roots of which are deeply grounded in all branches of human ailments.

I venture to assert that medical education and pre-medical education are somewhat awry. My contention is made not on academic grounds alone, because the physicians' intellectual and technical preparation can never be too great, but also on professional and economic grounds.

One of the most disrupting elements in medical life today is the part played in the preparation of the profession, and later in the practice of medicine, by the endowed foundations, or other institutions embodying lay interference with the practice of medicine which places the profession in the position of competing with these subsidized efforts; with universities or other institutions in which the overhead expense of practice is cared for either by endowed interests or by tax payers.

When a university, or a hospital, or an institution featuring a pay clinic or a part pay clinic enters into the practice of medicine, then the community upholding and endorsing or permitting such an institution so to function is well on the way to state medicine. And state medicine, as much of Europe and especially Germany has discovered, offers the worst of all possible service to the community upon which it is inflicted.

Men and women of intellect, as well as nations, that have risen to heights only to fall into the sloughs of debased materialism, to put it mildly, have long since discovered that with the spiritual and with the ideal, there can be no traffic. One cannot make friends "with the Mammon of iniquity" in this regard and still prosper. The practice of medicine is a thing apart; an ever living monument to the hundreds of unsung martyrs who have died that others might live and that civilization might progress. Comes apace the

race of merchants and traders, who having bought up everything else under the sun, from the palaces of kings of ante-Scriptural days, to the most modern of airplanes and automobiles, now planning to buy if it can, that beating heart of the healing arts, the idealism of the physician; attempting this malfaesance through endowed clinics, hospitals, universities, and other institutions, and desiring to tell the physician what to do and how to do it. From a fearless, courageous army of idealists pledged to the greatest of mortal sciences, this long line of almost sacred adjuncts to civilization is to be reduced to the rank of hired mercenaries. Gentlemen, it cannot be done and medicine survive in its greatness. If the increase in medicine practiced by corporations and under lay dictation is not halted within the next decade, the independent practice of medicine, and with it, the practice of medicine at its best for the individual and the nation will have become a vanishing memory. Oil and water do not mix. Medicine must be in the hands of the doctors or else lay dictation, no matter how skillfully disguised, will stand convicted of the murder of medical progress.

If the men of great wealth who seek to lift the burden of the high cost of medical care from the public, were to extend their efforts along the line of reducing the cost of medical education, these men would attain their object more quickly and confer great benefits on many worthy candidates from the noble practice of medicine. "Founders" and "Endowers" are saying that two classes, the very rich and the very poor obtain the best medical care. To my mind, this assertion is absurd. The very rich have the feeling they are getting the very best of care because of their ability to employ the men of special renown in the profession. A small percentage of the poor in larger centers comes under the care of these same men of special renown. Throughout the country in general, it is my belief that the poor and the middle classes receive the very best of medical attention, because the men practicing among these communities or groups are before the eyes of the public in general and their first thought is not for the financial reward which will accrue, but for the satisfaction of having rendered the best that lay in them. The great middle class needs no sym-

pathy. Accustomed to procuring the best that goes in every department of life, luxury or necessity—radio, automobiles, home comforts, education, why should this group be pauperized when it comes to medical care? True too much money is often unnecessarily spent by the average person in order that he may possess an imposing sheet of graphs, counts, charts, weird numerals. and what not, from the offices of the pay-as-you-enter clinics and specialists.

My real estimate as to faulty medical care and attention given the poor arises from my contemplation of those public welfare organizations, worthy of motive, no doubt, but economically short-sighted and socially not without grave possibility of wounding the body politic. Too much is said, particularly by opinionated sociologists whose preparation is begotten in a few months work under a set of theorists and is fostered by such indignation as can be aroused in reading facilely written magazine articles, about the high cost of medical attention. My experience in this community, a small American municipality with some of the ear-marks of a large city, has convinced me that the average poor man and his family can have excellent medical care at a moderate cost. I note further facts, and I note these as a general practitioner who has been taught to see more in medical practice than that which merely meets the eye. This class of patients, preserving their self-respect when paying what they could afford for attention made better medical progress and developed into better and more healthful members of the community under the old ethical method, than since they have been pauperized by indiscriminately distributed medical benefactions. This is a broad human fact. No real authoritative sociological authority denies it. Results of too much so-called medical benefaction are seen in what it does to the general practitioner. I can easily quote cases. But I confine myself to one demonstrable proof because anyone who will observe may read the same lesson. Long and varied experience among poor Italians has shown them to be able and glad to pay. To avoid all misconception, I must add that they really did pay (many others being both able and glad but still not paying) and to cap it all and to warm the heart of the doctor, they were the most appreciative patients I ever had. I am forced to say "they were," that is, until

public welfare meddling had pauperized them; shown them the trick of getting something for nothing, whether that "something" was as good as what they formerly got for a few dollars or not.

Now, as I have said, come great captains of industry, men who would resent interference or criticisms of their methods or suggestions as to the way they should make, deliver, and price washing machines, wearing apparel, farm implements, automobiles, or other elements of modern life, yet who presume to tell the public that this public is being gulled by the men of our great profession. These industrial philanthropists would install free clinics and part pay clinics; decide who should pay and who should get off on part pay and make the average physician the goat. These industrial philanthropists through their so-called benefactions and their influence that so reach to hospitals and to great universities that they sometimes presume even to direct the curricula for the medical man, thus tend to break down all the ethics and traditions of the profession in order to promote the pet ideals and hobbies of non-medical laymen with more money than balance.

This brings us back to present day medical education. Therein one glaring fault is the educating and bringing forth of medical men, not by medical men who practice, but by full time professors who are not practitioners. Result is that our graduates today come out inadequately equipped for the great and necessary work to which they aspired. They have learned theory; they have not copied practice.

As a matter of preparation for his great work, would not the student be greatly benefited by having more pre-medic work (at least good Latin and Greek) in high school? But here is where angels fear to tread. In fact I do not feel any too sure myself. The difficulty about extending pre-medic work downward into the secondary schools is that we are liable to encounter the awe inspiring monster known as Paternalism. Where that monster might ultimately lead us is a matter of grave conjecture indeed "and makes us rather bear those ills we have than fly to others that we know not of" although we can go Hamlet one better, for we can at least give a good guess.

Candidates for the M. D. degree, held in so

great honor everywhere, should be carefully scrutinized for evidences of that integrity and moral soundness which are indispensable to the right idea of a medical practitioner. It must be insisted on, that to allow medicine to deteriorate into a trade is to commit professional and social suicide and to be accessory to the slow murder of civilization and the humanities. The closest possible contact should be maintained between the practicing profession and medical students.

It would seem that some reversion to the old preceptor method is indicated in order to keep the medical students' perspective always true to the lode-star of ethical medicine. In the pre-medical work, if anything should be eliminated, I would say eliminate the requirement regarding a smattering of modern languages; it never gets anywhere. Solidity, not veneer is wanted.

In medical schools today, it is unfortunate that our students do not come in contact with practicing physicians until their Junior year. Teachers must be sought whose vision is as broad as their training must be deep. Here again, unfortunately, the teachers are too often full time specialists. Some of the greatest teachers in the history of medicine in this country, such as Billings, Senn, Murphy, Quine, Fenger, Davis, and all specialists in their later lives, trained to the task in great fields of medical practice, were the type that today are too infrequent. These men taught scientific medicine, altruism, and devotion to humanity, and they kept alive in the student mind, an awareness of current conditions and of what should be expected of every doctor as the priest of the sacred human body. The practical things in medicine should not be suppressed at the expense of scientific medicine. Too many men trained according to the present tendency, bloom forth as specialists and lack the training necessary to endure and sacrifice.

Let us not be down hearted. I have recited a deal of woe and have given you no panacea. I suppose I haven't even indicated anything effective for even one symptom. However, I shall venture. Our refuge, our help, must come through the rearing of the new medical men on the old ethical lines, close contact throughout the student years with the men of general practice, and if possible, by extending the arm of fellowship from the State Society in a protecting and encouraging way to the student. We must

have cooperation, mutual sympathy and respect. We must present a united front against all that is unethical, shifty, questionable, or merely expedient. We must recover the control of medical education and medical practice by medical men.

We discover the meanings and relationships of life only as we search for them and beyond debate what helps us most in any troubled time is the discovery of saving forces which, it may be, we had left out of account; heartening facts we were not recognizing; healing relationships of which we have not availed ourselves. Keeping in touch with each other in meetings, discussions and affiliations of a general nature—these are our weapons and should be our ever present help, because we are not to be superseded as a class, we are still important in every community. We must not desert our posts, in the face of troubled times. Physicians heal yourselves and heal each other.

THE CLINICAL AND X-RAY LABORATORY*

JOSIAH J. MOORE, M. D.

CHICAGO

The economic status of the clinical and x-ray laboratories differs somewhat from all other specialties in medicine. These are the only medical specialties in which non-medical trained persons or laymen are permitted to conduct a medical practice. The approved clinical laboratories are conducted by specialists who do not have a practice of their own, but take only referred patients. That is, patients coming to these laboratories for examination without being referred by a physician are told that they must give the name of a physician to whom the reports will be sent before having any examinations made.

Considering first, the clinical laboratory, we find several different types; 1. Those managed and directed by persons not graduates of medicine; 2. Those managed and directed by medical graduates, who are not properly qualified in the specialty and who appeal to physicians by price reductions or fee splitting; 3. The municipal or state laboratories which, depending upon their

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policy and location, perform a varying number of the laboratory tests for physicians; and 4. The properly qualified clinical laboratory which has been approved by those organizations approving or standardizing clinical laboratories. All but the state and municipal laboratories are being supported by licensed physicians.

In Chicago peculiarly we have a fifth laboratory maintained by a large institution which advertises in the daily press, is considered unethical by organized medicine, but still because of the low price charged for laboratory work, is to a great extent supported by the very physicians who criticize it. We also have in cities where medical schools are located a certain amount of laboratory work performed by the instructors in teaching institutions. The clinical pathologist is well satisfied to have this work done by competent men, but feel that their charges should at least be the same as those of the practicing clinical pathologist. In some instances blood chemistry and tissue diagnosis have been and are being made in such teaching institutions at much lower prices than those of the clinical laboratory. We feel that this is unfair since the persons performing the work are using the material, space and all other facilities of the university and have no personal overhead to maintain.

While clinical pathologists approve of the work performed by the state laboratories and realize the importance of such laboratories in the control of contagious diseases, they feel that in many instances the state laboratories have gone far beyond necessary diagnostic limits in the performance of such tests. Fortunately, in Illinois we have a Public Health Department which assumes a sympathetic attitude toward all branches of medicine. At present the State laboratory performs the Kahn test for syphilis for any physician sending blood for such an examination, without obtaining the name and address of patient. This was started to improve the treatment of syphilis in the State. While this latter is being accomplished many abuses have arisen and a true epidemiological control of syphilis has not been obtained, but the state has a long series of Wassermann and Kahn tests upon unknown persons. The State laboratory is maintained presumably for doing these tests upon charity patients, but the test is performed upon all speci-

mens sent to the laboratory without any investigation of the financial status of the patients.

The Illinois Medical Laboratory Association has suggested that all specimens submitted for examination be accompanied by the name and address of the patient and that notices be returned to these patients stating that the tests were performed by the State laboratory, free of charge. The State authorities of public health felt favorable to the suggestion, but wished the endorsement of the Illinois State Medical Society. The matter has been presented on various occasions over a period of two years to the Council of the Illinois State Medical Society, but no action has been taken to date by the Council. If such action was taken there would be an increase in approved laboratories in the State of Illinois outside the city of Chicago. At present it is stated by approved clinical pathologists outside the city of Chicago, that on account of the physicians sending many of these tests to the state laboratory it is almost impossible to maintain their own laboratories. The state laboratory will also profit in having technicians released for more important epidemiological problems.

We, as clinical pathologists, humbly beseech the Illinois State Medical Society and their Council to take action upon this matter and to lessen this discrimination against one of the specialties in medicine. All possible efforts should be made to stop this phase of state medicine. The approved clinical laboratories of the state will gladly perform all the tests performed by the State laboratory other than those tests coming from State institutions, without any charge to the patient in actual charity cases (a charity patient being defined as one who has a certificate from his physician stating that the physician is receiving no fee for his medical services).

The future, however, is bright for the clinical pathologist since the American Medical Association and local societies are approving qualified laboratories, and organizations standardizing hospitals now request that the laboratories in recognized hospitals be directed by a competent pathologist, or by a laboratory approved by the American Medical Association. We, therefore, can now advise young medical men to take up clinical pathology as a specialty for life rather than a stepping stone to internal medicine or surgery.

The economics of the x-ray phase of medical work differs somewhat from that of the clinical laboratory aspect. This is partly due to the considerably larger amount of initial as well as upkeep expense, a very much larger overhead having to be met with in x-ray work. The equipping of a modern x-ray department calls for a financial outlay from three to six hundred per cent., depending upon the activities planned for. If radium therapy be made a part of the x-ray department's activities, the outlay is even greater. The technical work of x-ray exposures is, of necessity, performed by individuals especially trained in the work, while the strictly professional phases should be done only by qualified physicians. This is economically sounder than is the practice of some physician roentgenologists who perform the technical work of exposure, dark room developing, etc., themselves. Many of the lay x-ray technicians become exceedingly skillful in the work and command, therefore, relatively high salaries, further adding to the overhead. In a properly conducted x-ray department there is so much detail work connected with thorough x-ray technique that a laboratory which does a large volume of examination, requires an increasing number of technical assistants. X-ray investigations must not be thought of as a mere matter of placing a cassette under a given part and an x-ray tube over same, the throwing of the x-ray switch and subsequent development and drying of the films. The end product of the entire proceeding is an interpretation in terms of normal or pathological change with interpretation or so-called diagnosis which constitutes the opinion of the physician roentgenologist responsible for the work. It is necessary to educate those concerned to think of an x-ray service dissociated from technician features; in other words, x-ray fees are paid for the physician roentgenologist's opinion and not for so-called "x-ray pictures" at so much per "picture." The question of who shall make the interpretation is not a debatable one. The rules of the American College of Surgeons and other similar bodies specifically call for physicians trained in roentgenology to have full charge of x-ray departments, who shall be responsible for diagnostic as well as technical details. No x-ray laboratory exists without the support of the regular or specialist physician, or surgeon.

Due to unfortunate precedents established and the difficulty of changing habits and routine form through such precedents, there is still an undue amount of laymen interference in this special branch of medical practice. Physicians who refer their patients to laymen directed x-ray service are perpetuating a practice which would be entirely as reprehensible as would be the practice of some physicians who might send their patients to a chiropractor or other similar cult. Just as soon as physicians and surgeons cease sending their patients to laymen for x-ray service, will this type of non-medical work disappear. It is true that the small hospital has a too limited income to maintain a complete x-ray service in diagnosis and therapy which is in charge of a physician roentgenologist. In such instances it is entirely feasible, economical and advisable to engage the service of a qualified specialist on a part time basis. This is becoming more and more the practice in the small hospital x-ray laboratories, and by this means the need of resorting to laymen interpretations is obviated. The relatively high operating overhead of a good x-ray laboratory service requires a fee for such service commensurate with the cost of production, plus the return for the professional service in the form of the roentgenologist's opinion. It would be economically more sound to have put two x-ray charges, one for such cases as call for a single visit with a few exposures, the other to cover the more extended examinations, but this does not appear at the present time to be a practical solution. There is hardly an x-ray laboratory that can operate under proper conditions at a cost of less than approximately \$10.00 per case, excepting the large volume work would be a little less; therefore, patients who pay \$5.00 and even less for certain x-ray examinations (a common practice in many places) increase the fee charged to some other patient, who must be charged too much in order to offset the loss in the first instance. It therefore, goes without saying that the customary x-ray fees in the lower brackets should be increased, while those in the upper brackets should be decreased in order to make a more equitable distribution of the cost.

I wish to thank Dr. E. S. Blaine for his preparation of the paper from the x-ray viewpoint.

THE GROUP CLINIC*

E. P. SLOAN, M. D.

BLOOMINGTON, ILL.

There is no economic side to ethically conducted group clinics from the standpoint of increased revenue. The doctors who organize a group with the expectation of thereby producing either through increased number of patients or larger fees a larger joint income than the combined incomes of the different members would be if practicing individually, are doomed to disappointment. From the standpoint, however, of economy in providing facilities for thorough and complete examinations and competent service diverse and varied as diagnosis, medical treatment, eye, nose and throat, surgery, bacteriology, x-ray, pathology, pediatrics, obstetrics, neurology, etc., there may be distinct economic advantages in co-operation in a group clinic to both its members and to the patients.

The man who recognizes his own limitations in certain fields of work, can in a group clinic confine his activities to lines of work in which he feels that he is proficient and without loss of prestige or financial returns can provide satisfactory service for his patients along the lines in which he is not competent, by the assistance of the other members of the group. Many hospitals present an outstanding example of this saving, to both the patient and doctor by co-operative activities of the members of the hospital staff and the organized laboratory and clinical facilities of the hospital. The closed staff hospital is in effect a group clinic. From the economic standpoint all the advantages and disadvantages that may be cited in regard to closed hospitals, will apply to group clinics.

One boon of the clinic arrangement is the possibility of the individual absenting himself from the scene of his labor with clear conscience. Few doctors take vacations for the simple reason that there is no way to shift the responsibility. The clinic administration makes for an easy and fair rotation of absences—vacations, attendance at medical meetings—the much needed change of scene is permitted when the doctor knows his absence works no hardships on his patients, when

he knows they are being given the high standard of attention maintained by his group.

Another result of the clinic is the extended and thorough nature of the routine examination. This is usually a matter of gradual evolution. Growth in numbers and facilities brings about an adequate routine examination that is impossible for the individual doctor to give his patients.

The disadvantages of group practice from the economic standpoint, is the ever-present tendency to let overhead expense increase out of all proportion to the income. Second, a tendency for duplication of work. Third, a tendency to rely too much upon expensive laboratory procedures rather than clinical judgment. Fourth, the difficulty in collecting adequate fees for the extra amount of work done. Fifth, it is almost impossible to obtain efficient additional physicians on a salary basis.

THE NON-TEACHING HOSPITAL AND ITS OUT-PATIENT DEPARTMENT*

W. C. DANFORTH, M. D.

EVANSTON, ILL.

Properly speaking, there should be no hospital which is entirely a non-teaching institution. A hospital which is not teaching somebody is dead and should receive decent and reverent interment. A hospital may not provide for clinics and ward walks for students, but it should be a source of instruction none the less. I pass over the teaching of nurses as I am to discuss the "Relationship of the Non-teaching Hospital to the Community." Three groups of people are benefited by such an institution, if it fulfills its mission as it should. These are, the internes who serve in it and later serve the public as doctors, second, the physician whose patients are cared for in the hospital and third, the patients who in the wards and out-patient department are cared for and advised. In the care of many of these the social service department is a tremendous help.

The non-teaching institution the work of which I am to discuss consists of a group of buildings with beds for 250 patients. It contains a fully equipped laboratory with a director and assistant and a staff of technicians. All of the

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usual departments common to large hospitals are present in a fully developed state, including an occupational therapy department. An out-patient department is maintained with hours and attendants provided for the different divisions of medicine. The medical organization varies from that usually found in non-teaching institutions. It is divided into three divisions, the division of medicine, including neurology, pediatrics, and dermatology; the division of surgery, including orthopedic surgery, oral surgery, urology and oto-laryngology; and the division of gynecology and obstetrics. In charge of each of these is a chief. He is responsible for all the work of his division. All work in the charity service of a division is done by men selected by the chief. These become members of his department and he is responsible for the character of their work. This necessarily entails care in selection on his part and tends to place the responsibilities of the service in the hands of men who are actually, rather than nominally, qualified to carry them. It also operates to place the opportunities of the service in the hands of those who will profit by them. This, I believe, is proper. The poor patients, who cannot select their own physicians, are well served, and at the same time the hospital is aiding in the training of physicians and surgeons whose experience and skill constantly increase in value. Even though students in classes may not be taught, a hospital in which large opportunities exist, can, by developing able young men under the guidance of an experienced chief of service, perform a service to the community. It may in this way add to the supply of properly developed specialists in the various fields of medicine. There are not too many of these, although the crop of near-specialists is beginning to cause concern in the minds of many of our sanest men.

A courtesy staff, who do not assist in the charity work of the hospital, are accorded the privileges of the institution. Its number must be limited by the physical capacity of the hospital. Their work must be of a character which, in the opinion of the chiefs of the divisions in which their work may be, will not be prejudicial to the best interests of their patients. They are welcome at all times to such aid as the chiefs or their associates can give by discussion, advice and consultation. There is no doubt that since

this arrangement has been in force the average character of work done in the hospital has improved. Those who operate hospitals should not fail to realize that they owe a duty to the community beyond the mere provision of beds and nursing. A non-teaching hospital need not countenance poor work and it fails in its duty to its community if it does so. Furthermore, if it does so, the worth while doctors of the community will not support it.

The out-patient department is an important phase of our work. It has its own supervising nurse, records and a number of rooms fitted for various sorts of work. A waiting room of adequate size is provided. Medical attendance is provided by the younger members of the various divisions. It is open all day and in addition an evening clinic is provided for heart cases. That such a department of hospital activity is valued by the community would seem to be indicated by the usually full waiting room.

A department of social service is of great service to us. It is under the supervision of a trained social worker who has four assistants. Her office is next to the out-patient department. One of the important functions of social service is to determine whether patients applying for free service are properly entitled to it. Friendly relations with neighboring physicians are disturbed by a hospital clinic which cares for people who are not justly entitled to free care. The functions of this department do not vary from those of similar departments in teaching hospitals. It is of immense value in following up patients after discharge. Since its establishment five years ago it has investigated, followed up, or in some way served nearly 5,000 patients. It could not be dispensed with.

That work of a grade equal to that done in teaching institutions cannot be done in a non-teaching institution I believe is an error. The Mayo Clinic was for many years a non-teaching institution. No one pretends that its work was inferior or that its patients received less than patients in other hospitals. The respect in which an institution is held in its community depends entirely upon the kind of work done in it. This in turn depends upon the kind of men who work in the hospital. The community if it is worthy will respect it and support it. The rights of

surrounding physicians must be carefully respected.

I close as I began. A hospital which teaches no one is already dead. If it is a source of inspiration and help to the physicians and their patients it is fulfilling a useful purpose.

In the year 1927 11.9 per cent of the work of the hospital was done for patients who paid for neither bed nor medical care. In the same year 55.5 per cent of the work done was for ward patients who paid for their beds in part or wholly. A part of these paid small sums for medical service and were not properly service cases. It will be evident, therefore, that the institution is by no means wholly devoted to private room patients.

THE GENERAL SURGEON*

M. L. HARRIS, M.D.

CHICAGO

The symposium this evening is on medical economics. We define economics as the science which investigates the production, distribution and consumption of wealth, or the means for fulfilling one's desires. There are several subdivisions of the general subject of economics. We have to deal only with economics as applied to medicine and the practice of medicine. This involves not only the general surgeon but the general practitioner. Desire is the motive underlying practically all human activities. Desire may take several forms. In the practice of medicine the desire coming first is the necessity of earning a means of livelihood; then there is the desire to acquire wealth; the desire to acquire fame. The desire to acquire wealth pertains not only to the physician but to humanity in general. The desire for fame when it is based on a desire to benefit or a desire to do something for humanity is a noble thing. This is usually the basis of the work done by those in research laboratories, to develop something of great value to humanity and the diseases of humanity. It is in the other two subdivisions of desire that we will devote a large part of this talk. The first is the desire which causes the physician the greatest amount of trouble and through which he loses much of the benefits which should come

to him from his work. I shall take up the benevolent side first. By that I mean the desire to be of some use and value to the individual. By altruism I mean the desire to do something for humanity and the public in general. There is a great difference between benevolence and altruism. What one may do to the individual, the care he may give him, the charity which he may bestow on him is an individual matter which comes from the heart of the one who is giving it and is an act of humanity. The practice of medicine is a humanitarian occupation. When it comes to altruism or doing those things which benefit the public, we have a matter of business. It is business entirely with the physician or should be. It is in this line that he is imposed upon to the greatest extent. The physician is imposed upon in the line of altruism greater than any other person. In every altruistic proposition which is brought before the public that involves the question of health, the physician is called upon and he is called upon first. He is called upon to do altruistic work and philanthropic work but he is not supposed to be compensated for it. Every other person connected in carrying out the work of altruism is compensated for his labor, but the physician doing altruistic and charitable work is called upon to give up his time and his labor for nothing. Now this is where the physician should have a little business acumen. He should learn to distinguish very clearly between his obligation to the public or to humanity and his obligation to the individual and he should by this acumen be able to distinguish, when he is asked to contribute his services to an altruistic proposition, between what part of it belongs to him as an individual and what part belongs to the community. He should contribute his work or his mite to the proposition, whatever it might be to just the same extent as any other individual in the community, should it be in the shape of money, work or what not. When he has done that he should see that his services beyond that point are properly compensated.

In the question of economics there are three parties involved, the patient, the doctor and his family, and the public. The relations of the physician to the patient are of a contractual and also of a moral nature. The duty to himself and his family we all understand. He has a

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duty there and that duty is to take care of them. His duty to the public I have already tried to explain. It extends just so far as the duty of every other citizen extends. The physician has a duty to perform to the public and that is to take care of the sick. This duty cannot be shifted to any other group of individuals. There is no group of individuals competent to care for the sick except the physician. This duty therefore must be fulfilled. It cannot be delegated to anyone else. The profession must either fulfill its entire duty in this respect or the work will be done by the state. The profession must make provision for caring for all of the sick all of the time. How can it do that? By organizing the county medical society into a group clinic which will make provision for caring for all the sick all the time and at a price depending on the economic status of the patient.

THE INTERNIST*

EMMET KEATING, M.D.

CHICAGO

This program bears some resemblance to a horseshow, with some modifications. When we go to a horseshow we see horses perform work for which they are suited and particularly trained. On this program there are some ten physicians who are exhibited as representative of ten classes of doctors.

Tonight we have heard from three surgeons. We have not seen them perform the duties which they are fitted to perform and which they perform in so skillful a manner. We have heard from the general practitioner but we have not seen him take temperature, feel a pulse, take a history or develop a diagnosis. We have heard a great administrator of a great medical school tell us very correctly, and to our satisfaction, the duties of a medical school, but we have not seen how this eminent administrator really accomplishes his work.

My part on the program is to exhibit the pace of an internist. The internist as a distinct species is fast becoming extinct and I am glad that such is the case. I am glad for one reason, because the word internist does not convey any particular or definite meaning. If a carpenter

asks a doctor what his specialty is and the doctor says he is a surgeon, the carpenter at once knows that this man is engaged in cutting, sawing and sewing. If he asks an oculist the same question, there are very few who will not know that an oculist deals with conditions confined to the eye, but when the mechanic, business man, lawyer or a minister asks a doctor what his specialty is and he says he is an internist, it does not mean anything at all.

Now, the internist flourished up to about twenty-five years ago. At that time the range was limited, the Class A medical schools began supplying the country with men who knew as much as internists and sometimes knew more. They were educated for the purpose of taking care of the ills of the community, minor ills that are unimportant and major ills that require all the skill and resources the general man possesses, including those conditions that require the attention of those who have confined their study to a particular specialty. They are called general practitioners or family doctors.

The old time family doctor, about whom Dr. Chapman has told us, has passed out of history never to return. His place has been taken by men who are eminently qualified to take care of the people in their community. They are eminently qualified to do any of the things that any physician may do, but better than that, they are eminently qualified to know, when the time is ripe, that those patients should be sent to men in the different specialties, who, because of their concentration of work, are capable of giving service that men in general practice cannot give.

The internist, then, has been supplanted by the general practitioner, but the general practitioner is not living up to his responsibility, and he is not assuming the position in his community that he should.

I would like for the wife of every physician in this audience, whose husband is a general practitioner, to constantly urge him to become what was formerly known as an internist; that is, to be able to take a careful and complete history, to be able to make a complete physical examination, and, finally, to be able to make a correct diagnosis. If he thinks that he has not had sufficient practice in doing these things, remind him that if he will study carefully each

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patient who comes to his office, whether he expects to get a large or a small fee, it will not be very long until he will find himself in possession of a knowledge that will command the respect of the specialists. The public will soon learn that they need not go into foreign fields to find someone who is entirely capable of giving them proper counsel, proper advice and proper medical care. They will find that the family doctor knows his work so well that they need have no fear that, if something arises that he feels needs the attention of a specialist, he will promptly send them to someone who has properly prepared himself for that particular kind of work.

THE GENERAL PRACTITIONER*

P. R. BLODGETT, M. D.

CHICAGO HEIGHTS, ILL.

I am glad that my part of this program pertains to the subject from the standpoint of the general practitioner in Cook County. To the class of general practitioners belong the rank and file of the profession. These physicians are the backbone of the profession. They are the doughboys of medicine. We know that wars are won by the infantry. This is equally true in medicine; its victories are ultimately won by its infantry, the general practitioner. In this great professional army, which has for its objective the conservation of human life, we must have the various branches of the service, including special troops, aeroplanes and gas-bags, and the non-combatants; but it is the general practitioner, the man who is out on the firing line in hand-to-hand combat with the problems of the profession as a whole, upon whom the victory depends. Unless the general practitioner has ability and exercises judgment, the entire structure falls. The fact that medicine occupies the position that it does today is due in no small part to the high type of men in general practice.

The general practitioner is the man who carries the practice of medicine to his community. His is a personal service. He sees his patient as an individual possessed of a complete anatomy, not alone from the standpoint of a Fallopiian tube, a deviated septum, a pes cavis, or an ulcer on the skin. In the great majority

of instances, the responsibility for the care of the patient rests upon him. His standing in the community, as well as the standing of the profession, depends upon his ability to practice good medicine.

A great many would have us believe that the general practitioner is the clearing house for the specialties. No opinion could be more erroneous. Specialists are of value to the general practitioner in rendering the highest type of service to his patients. They are valuable adjuncts to general practice. With the numerous specialties, all of which at times go off on a tangent, the profession is dependent upon the general practitioner to keep its head clear and its feet on the ground. The general practitioner is the balance wheel of medicine.

There are a great many economic problems confronting the profession. I appreciate that the various groups who make up the profession each have their separate problems, but the issues facing the general practitioner will determine the future of American medicine as an independent profession with its own leadership and its own control.

In Cook County, the greatest single problem facing medicine, and the general practitioner in particular, is the abuse of medical charity. In this great center of population, there is a great deal of legitimate charity. We have in Chicago The Infant Welfare Society and the practice of medicine by the City of Chicago, The Cook County Board, and The United States Veterans' Bureau. In the outlying districts, we have The Chicago Tuberculosis Institute and the ever-increasing activities on the part of the County Board. All these organizations in encouraging the abuse of medical charity affect principally the general practitioner.

We have corporations practicing medicine. They affect the entire profession as they affect the general practitioner.

The quacks we have with us. Here in Chicago is the greatest quack institution of all times, the Public Health Institute.

We have here the practice of medicine as it is conducted by our medical schools. I was glad to hear Dr. Cutter say tonight that Northwestern is setting its house in order to the end that it will admit only deserving charity cases. May the day soon come when all medical schools will follow the same course. I know that one

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of our medical schools has entered into an entangling alliance with the "boss" quack institution. The majority of our medical schools are practicing medicine in competition with their own graduates. Our medical schools have a definite place in the profession, but not as corporations practicing medicine.

The wholesale dispensing of charity, as practiced in this county, is an economic as well as a social failure. It pauperizes the individual. The pauperization of the individual in any respect is a bad thing for society. Such a program destroys a part of the self reliance, the independence, that goes to make that individual an asset to society. The profession has given more to legitimate charity than all other agencies combined. This contribution, to the welfare of society, is in every instance a personal one; it is that kind of charity which helps the individual back on his feet so that he may become again a useful member of society, but is never the type that pauperizes him. Society in handling its charity problems might emulate the stand taken by the medical profession.

In this country we are being overrun with a socialistic bureaucratic trend of government. It is centering itself more particularly upon the treatment of the sick.

Paternalism in government defeats its own purpose—it harms those it would help. In no regard has this movement gone further than in the care of the sick. Those behind these movements are professional reformers and political rascals.

Our economic problems are real ones, our failure to adequately solve them will cripple the profession. We all have an obligation to our profession. Our value to organized medicine is measured in terms of our ability and inclination to work in harmony with other men in economic salvation as well as scientific advancement. In order that any profession may render the type of service that society demands of it, society must make it possible for that profession to maintain its economic independence. Society must be made to appreciate its obligation. Without adequate medical care, society will suffer.

We have long been lacking in a definite policy in regard to our economic affairs. The time has come for us to take a determined stand upon these problems as a profession. Nothing can be done until there is a genuine determi-

nation to do it. Four thousand Doctors in Cook County, working together, can accomplish anything within reason. These problems can be handled in a satisfactory manner when the profession is willing to apply itself to its economic problems with the same earnestness that it pursues activities in scientific directions. At the last meeting of the Council of the Chicago Medical Society, provisions were made for the establishment of a commission to study these various economic phases of practice. I hope and pray that out of this commission will come a definite constructive program which will lead to the solving of our economic problems. We have temporized too long already. The time has come for us to work out our own economic salvation.

Medicine has an obligation to its posterity. There is a definite duty which we owe to those who are to follow us in the practice of medicine. Along with those scientific advancements which will make it possible for them to practice better medicine, we must safeguard the economic status of the profession in order that they may be able to render that service.

I am intensely interested in medical economics. When I came back from France, the boy I had never seen was almost a year old. He is my pal, he is my partner. I want him to study medicine. I want to see other boys study medicine. One of my duties is to do everything that I can to keep this economic phase of medical practice where my boy can carry on his professional work. Every time I look into his little upturned, trusting face, I renew again my pledge to him: "I will keep faith with you."

CODE OF ETHICS

Extract from original manuscript of a History of the Illinois State Medical Society During the First Fifty Years of its Existence by N. S. Davis, Chicago, dated May 15, 1900.

"Though individual memberships thus rapidly change, the Society and its purposes remain the same. These purposes or objects as declared in the Preamble to the Constitution adopted in 1850 were, "for cultivating and advancing medical knowledge; for elevating the Standards of Medical Education; for enlightening and directing public opinion in regard to the duties, responsibilities and requirements of medical men; for exciting and encouraging emulation and concert of action in the profession and for

facilitating and fostering friendly intercourse between those engaged in it."

Report of the Special Committee on Explanatory Declarations Concerning the Proper Interpretation of the Code of Ethics appointed at the Annual Meeting in Washington, May 9, 1884.

"Your committee, having given the subject referred to it due consideration, respectfully submits a brief report in the form of a preamble and resolutions as follows:

"WHEREAS, persistent misrepresentations have been and still are being made concerning certain provisions of the Code of Ethics of this Association, by which many in the community and some even in the ranks of the profession are led to believe those provisions exclude persons from professional recognition simply because of differences of opinions or doctrines, therefore

1. *Resolved*, that Clause first of Art. IV in the National Code of Medical Ethics, is not to be interpreted as excluding from professional fellowship, on the grounds of differences in doctrine or belief, those who, in other respects are entitled to be members of the regular medical profession. Neither is there any other article or clause of the said Code of Ethics that interferes with the exercise of the most perfect liberty of individual opinion and practice.

2. *Resolved*, that it constitutes a voluntary disconnection or withdrawal from the medical profession proper, to assume a name indicating to the public a sectarian or exclusive system of practice, or to belong to an association or party antagonistic to the general medical profession.

3. *Resolved*, that there is no provision in the National Code of Medical Ethics, in any way inconsistent with the broadest dictates of humanity; and that the article of the Code which relates to consultations cannot be correctly interpreted as interdicting, under any circumstances, the rendering of professional services whenever there is a pressing or immediate need for them. On the contrary, to promptly meet emergencies occasioned by disease or accident, and to give a helping hand to the distressed without unnecessary delay, is a duty fully enjoyed by every member of the profession, both by the letter and the spirit of the entire Code. But no such emergencies or circumstances can make it necessary or proper to enter into formal professional consultations with those who have

voluntarily disconnected themselves from the regular medical profession in the manner indicated by the preceding resolutions." New Orleans, La., April 28, 1885.

Committee: N. S. Davis, of Chicago, Ill.; A. Y. P. Garnett, of Washington, D. C.; H. F. Campbell, of Augusta, Ga.; Austin Flint, Sen. of New York; J. B. Murdock, of Pittsburg, Pa.

DISCUSSION ON SYMPOSIUM ON MEDICAL ECONOMICS

Dr. J. F. Hultgen: The general practitioner is now having twelve consultants. We conclude, therefore, that he is very sick. He has been recognized tonight as never before. He surely has the ground floor and although he is at the end of the program the amount of attention paid to him all during the week, and especially tonight, would have been unthinkable a couple of years ago. I believe that the general practitioner has come to life and has come to stay. Among the great, perhaps unlooked for, results of the great war and one of the most important things is that in all fields of human endeavor is the question of economic problems foremost. I glory in the fact that the practitioner has finally awakened and recognized his place in the sun.

I could recapitulate what these twelve gentlemen said. They said very beautiful things. Never before have I heard so many handsome things about him. As you hear from the first paper, Dr. N. S. Davis, Sr., that great man, the great medical society organizer, did not think of the practicing doctor himself. He was an idealist. He never thought of the practitioner, of the man himself. He never taught him to take care of his health, how to keep his family, it was all for the service of others. The medical profession worked a long time in the light of that teaching but the time is ripe for the medical profession to think of the economic side of life. The Illinois State Medical Society has done a great service to the medical body in calling so much attention to it. The practitioners must provide the balance wheel which Dr. Blodgett talked about. The teaching side of the medical profession has had the ear of the practitioners for the last sixty or seventy years. The family physician has never been heard of, but now circumstances, and a good many of them outside of our own profession, have forced us to do a little thinking of our own. All kinds and conditions of men need criticism; they need it more than the flowers need sun. Without criticism we would rot. Literature without criticism would not be literature but pornography. I am not saying anything against the teaching body as individuals or as a class but they need that nice balance wheel of criticism that can only be provided by the intelligent general practitioner. We have not allowed the teachers in the American universities to run our government. There is no country in the

world where intellectuals alone run things. We ought to be thankful for this. Knowledge alone will not make a man wise or philosophical.

Another way to give the general practitioner the chance which we believe he has not had is to take better care of his own health. He has therefore not been able to increase his knowledge without unduly sacrificing himself in order to render better service as he grew older. Thirdly, he has not been able to provide properly for his family. No other class has been so much disregarded or forgotten as the practitioner. As a consequence we see a scarcity of physicians. I do not believe you can contradict me if I say this, that the best in every group of society has always been forthcoming from the lowest one, and the more neglected they are the more apt there is to be disintegration not only of the service but of energy of the profession as a whole.

Dr. G. B. Lake, Chicago: My observations lead me to believe that any physician who is in an economic position that is not satisfactory to him has no one to blame but himself.

The time was when the physician expected only an honorarium. The time has now come when the money we receive should be considered as an honest remuneration for our work, just the same as is the money the grocer receives. The physician who expects to be in a satisfactory economic condition must be a regular business man. He must remember that, while he is a professional man, he is also a business man, for his own sake and for the sake of his family. If he is not a business man he has no right to be in the practice of medicine.

The physicians who expect to succeed expect to be paid for the services they render. The only reason one man pays \$8,000 for a Lincoln car instead of \$500 for a Ford is because he believes it is worth the difference. The man who expects to do "Ford" service will receive "Ford" fees, and the man who gives "Lincoln" service will receive "Lincoln" pay. It is up to every physician to make himself worth what he charges. The patients will pay for services that are worth it. There will not be any question.

Every once in a while you hear physicians quarreling and saying medical organizations are all run by a clique. The people of Illinois have recently demonstrated that the greatest political machine of the country could be smashed. Let some of the physicians who do so much complaining about the way the medical societies are run, do a little more of the work themselves and take a little more interest and responsibility in organized medicine.

Dr. Chas. A. Coffin, Kewanee: A matter that was not brought out tonight has to do with the general practitioner. During the past three or four years we have heard nice things about the general practitioner. We are being told what an important position we occupy in the medical field, but I believe it is time for the general practitioner to speak up for himself and present some of his problems so that his fellows can help him meet them. The part I wish to refer to can be corrected if members of

our profession will think a little more of the other fellow. I refer to the patients who slip away from us and we do not see them again. Many of these patients secretly consult the clinic or the city physician, because they haven't the courage to tell the local man that they wish the opinion of someone else. I have patients who come to Chicago and I get a letter from the physician they consult and they come back to me. Others come to Chicago or go to different clinics and I do not hear a word. I recently had a case of a woman being treated for syphilis by a noted clinic. I believe two or three letters passed between her and this institution, one of them informing her that she need not consult her local physician and directing her to take remedies from their drug store. This practice I think is contemptible. Ten years ago I usually got letters back on these cases. For the past two or three years I have only received reports from the men who happen to know me. I find that the patients come back to us in a better frame of mind if these city men do not assume that they have been poorly diagnosed or improperly treated. A little more attention to this phase of our work would bring about a correction of any errors and these patients would return to us better impressed with the whole procedure and having greater respect for our profession.

ORGANIZATION AND MAINTENANCE OF A COUNTY HEALTH DEPARTMENT*

W. H. NEWCOMB, M. D.

Health Officer

JACKSONVILLE, ILL.

County health service under the direction of a physician who is alert and well trained in disease prevention assures rural and semi-rural communities of a well directed health program. The need and demand for such service becomes more apparent as the layman becomes informed about disease prevention. A county health department organizes and coordinates the health activities, eliminating duplication, and maintains well balanced health activities.

Organization. Health units may economically be maintained by counties with a population of 25,000 or greater. Smaller counties may be combined into a health district. Counties having cities not exceeding 50,000 population may better have a combined city and county health department under the direction of one health officer. Local and state health laws and regula-

*Read before the Section on Public Health and Hygiene, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

tions should be enforced by the county health officer throughout his jurisdiction.

The board of county supervisors or commissioners usually have the power to appoint the county health officer. Many states have county boards of health appointed by the board of county supervisors, or by the State Board of Health. The health officer in this latter case would be appointed by the county board of health. Where a city is combined with a county in a health unit and where no county board of health exists, the mayor, city council and board of county supervisors or commissioners must jointly appoint the health officer. The health officer of Morgan county is appointed under this plan. Political appointments may be made under any of the above organizations, and must constantly be guarded against. All appointments of health officers should be approved by the county medical society, and by the State Department of Health. All counties should have county boards of health, if not legal, an advisory board of health should be appointed by the county health department with approval from the county commissioners.

States having a number of health departments usually have a director from the State Department of Health for supervision. He should assist the county health officer with the various divisions of health activities.

Unofficial health organizations should work with and through the county health department. Lay organizations for promotion of health may well be included in the county advisory board of health. The county health unit should work with the county medical society, unofficial health organizations, and with the State Department of Health.

Personnel and Maintenance. Each county health unit should have a full time medical health officer with special training in disease prevention; one or more graduate nurses with graduate work in public health; a trained sanitary officer, and an office clerk. Smaller units may be maintained with a full time medical health officer and full time public health nurse. An office clerk is, however, indispensable for keeping records, correspondence and general work about the office. The expense for the smaller unit is usually not less than \$10,000.

Fifty cents per capita will give a good working organization for the average county.

Activities of a County Health Department. Health activities vary as to communities. Sanitation, communicable disease control, school hygiene, tuberculosis control, vital statistics, infant and maternity welfare, health education, dental hygiene, and venereal disease control, cover the usual activities of a county health department. County health work is the general practice of public health.

Sanitary surveys of various communities in the county will give some insight of the disease problem. The follow up of the surveys will eliminate improper disposal of human body wastes, will help in assuring the public and individuals of a safe water supply, will show the necessity for proper care of milk, and will give an index to prevalent diseases. These are the major duties of a sanitary officer, who likewise cares for disposal of garbage and rubbish, and for various nuisances. His activities must be re-enforced by the laboratory and by the health officer.

Communicable disease control for the most part should be conducted by the health officer and nurses. Cases must be reported by physicians; careful epidemiological histories must be obtained by nurse or health officer on all cases of typhoid fever, scarlet fever, diphtheria, poliomyelitis, smallpox, malaria, tuberculosis, and other diseases as the necessity demands. Vital statistics must be accurately compiled and studied by the health officer. Spot maps, chronological charts, sanitary surveys, water and milk analyses reports must all be at hand for working out the various communicable disease problems. Instruction in isolation technique can be best carried into the home by the nurses, who are the logical individuals to establish quarantine. Isolation hospitals and laboratories are adjuncts to all disease control. Vaccines, sera and the like should be administered by the family physician when possible. In case of a serious epidemic wholesale vaccination is a necessity.

School hygiene is probably the most important of all activities. The health officer and nurse should outline some health education plan for each school to follow. Physical defects may be found by the physician's examination or by the

nurse's inspection. Children needing medical care are then referred to the family physician or dentist for proper attention. Inspection of school children for communicable diseases as necessity demands, detects many early cases. Such a program removes the infection from the school early and should prevent the closing of schools because of communicable disease. Fresh air schools, camps, and the like are a part of the school program.

Tuberculosis control involves school hygiene, communicable disease control, periodic health examinations, the finding, isolation and care of those already infected, and health education. Nurses should be alert in referring suspects to their physicians or to clinics, if they are indigent. Public sanatoria for those infected are necessary because many of those with the disease can not afford to pay for the necessary prolonged treatment. The control of tuberculosis requires special methods and cannot be discussed in detail in this paper.

Vital statistics should be handled by the county health officer. All the births, deaths and communicable disease reports should go through the county health office. Vital statistics are of great help in locating trouble and measuring progress.

Infant and maternity welfare work should be largely educational. The actual work should be conducted by the physicians in the county medical society.

Venereal disease problems are numerous, requiring careful study before definite programs can be laid down. Clinics only for the indigent are of help. More cooperation is required from the physicians, druggists and others who treat venereal diseases.

Health Education is the most important function of a county health department. Newspapers, motion pictures, lectures before clubs and schools, health instruction in schools, use of literature, and personal instruction in the homes, are the usual methods carried on by most county health departments.

Mental hygiene, prevention of accidents, and other special activities may require more time from the county health department in the future.

The county health officer should not give medical care to indigents and should not practice medicine. A county health department is for

maintenance of health. Medical service for the poor needs some other solution.

RESULTS

The Morgan County Health Department has been in continuous operation since 1922. The county medical society and lay people of the county have given friendly cooperation to the department. Communicable disease control, school hygiene, tuberculosis control, sanitation and health education are the major activities of the department. The work of the organization has gradually increased, pointing toward satisfactory solution of the major controllable disease problems.

A careful program for communicable disease control has helped cause a decline in the preventable disease incidence, although more cases have been found. Improved living conditions, decrease in communicable disease severity, increase in the number of immune individuals, improved sanitation, and education in disease prevention have been associated factors. Morgan county has at least a well worked out plan for communicable disease control.

Medical inspection of school children and health education in the schools have been made possible through the health department. Nurses and health officer have made many visits to the 108 rural schools each year. Physical defects have been noted and brought to the attention of the parents. The total number of corrections have increased each year. Accurate statistics are only available for the past three years. The Board of Education maintains a school nurse (and at times two), who cooperates with the local health department.

Dental, nose and throat, and vision defects make up the greater number of the total. These cases were all referred to their family dentist or physician for care. These activities alone show the need for a county health department, and what can be accomplished. The work is entirely educational. Corrective work is entirely in the hands of the dentists and physicians.

These various schools have likewise been watched for communicable diseases. Daily inspection for suspected cases have been made when the necessity demanded, eliminating early the infection from the school.

Tuberculosis control has been strengthened by the activities of the county health department.



FREDERICK O. FREDRICKSON, M.D.

PRESIDENT ILLINOIS STATE MEDICAL SOCIETY, 1929-1930

More cases have been found, and a declining resident death rate was noted until last year. This work is materially strengthened by the Illinois Tuberculosis and Public Health Association.

Sanitary conditions about Jacksonville have improved somewhat and a definite program has been outlined for the ultimate solution. The amount of pasteurized milk has increased so that 80% of all milk coming into Jacksonville is now properly pasteurized.

Educational campaigns on various preventable diseases have been conducted by the Morgan Health Department. These campaigns have helped educate the laymen about various diseases.

Definite results should be manifest after a county health department has been working during a five year period. Sanitation of the county should be radically improved. The milk supply should be essentially safe. Towns and villages should have safe water supplies. The controllable disease incidence and the infant mortality rate should show a decline, provided the rate is unduly high. Correction of physical defects in school children should be rather numerous. Careful records should be kept and periodic check-ups should be made. Definite policies and activities must be outlined and enforced.

CONCLUSIONS

1. All counties or combinations of smaller contiguous counties should have well organized health departments, directed by a medical health officer.

2. The county is the logical unit and a full time county health officer is the logical director for all health activities in his county.

3. County health departments should be non-political and should live or die on their merits.

4. The county health officer must work with the county medical society.

5. The duties of a county health officer should be for disease prevention.

DISCUSSION

Dr. Isaac D. Rawlings, Springfield, Ill.: When I entered into state health work from the city of Chicago after twenty-one years of service, I was very desirous that we would be able during our term of office to make great headway on rural health work.

We realized that the main way to do that would be through county health units.

The first day I was in Springfield, I happened to

meet the Honorable Edgar Crabtree, mayor of Jacksonville, located in Morgan County, an old friend with whom I had gone to school. Some of you may know him. He served down there for seven years without salary as mayor of the town, and I asked him if he couldn't in some way work out with me a county health unit as a demonstration. It was near Springfield, the adjoining county, and we hoped that would help to sell the idea to our legislators if we tried to get a law or an enabling act permitting county health units.

We established this unit in 1922, and, as you see, it has been working continuously since. I think the demonstration has been a success, and I have been proud of the work that is done in that county.

We have tried at four sessions of our legislature to get a county health bill passed. I am sorry those present here are not the group that has to be sold to the county health unit idea. There are few here but what believe that is the logical unit, as the essayist has told us.

There are only one or two points I wish to bring up that Dr. Newcomb did not mention. The principal one is the question of a modified quarantine. In counties or cities where they have a full time health officer who is on the job and has adequate force for supervision, we permit a modified type of quarantine. This minimizes the hardships of quarantine to a great extent.

One of the commissioners in Morgan county told me that during one year, by permitting modified quarantine for the wage earners in that county, the saving of money, which they had formerly been spending for the alleviation of the distress of the poor that were shut up under quarantine, was more than their share of the cost that year for this public health unit. Their share was approximately one-third of the total unit cost.

This modified quarantine not only helps in the cities, but also in the dairy districts, as we have an absolute rule that where there is a case of scarlet fever, or other major contagion on the dairying farm, the stock must be moved away from that case of contagion if they continue in business. That means not only moving the stock but the food for those animals. That works great hardship. If they have sanitary officers where they can carefully watch the quarantine, and be sure it is absolute, they are permitted to continue their activities on the dairy farm. Modified quarantine is one of the advantages, of the many which were mentioned by Dr. Newcomb, of which he did not speak.

The natural question arises, why has Illinois but three county health units if it is such a good thing, as we all believe it is?

The answer to that is that we have no law in this state that allows the commissioners and supervisors to spend money for preventive health work. Our law says the only money that may be expended is for pauper relief, except in the presence of an actual epidemic. Local health officers can not do any preventive health work until the epidemic is in

their midst, then they have a right temporarily to spend money until that emergency is passed, then they can not spend any more until the next epidemic.

One or two counties are taking a chance and spending money without the law. We have tried our best to get a law, and in the last session we failed by four votes. Certain opposition that caused us to lose that bill should not have materialized. It came through health officers who should have been with us instead of against us on that measure. We have now but three county health units in the state.

Dr. Samuel Wallace Welch, Montgomery, Alabama: I cannot comprehend how the inhabitants of any state in the American Union could oppose public health activities.

I am a firm believer in home rule.

There is but one way to put over any public health activity on a large scale, and that is for the people who are being benefited by it to realize that it is their particular property; that they are responsible to the community for its success. Building on such a foundation your superstructure will stand.

In Alabama we have two-thirds of our counties already organized and probably will have 100 per cent, not later than December 31, 1929. We have actively going since the first of November thirteen counties, and eight in course of organization now, making forty-nine in all out of the sixty-seven counties of the state.

The people of Alabama are thoroughly sold to the work. The legislators think of public health work in terms of the medical profession in Alabama. The doctors of the state direct the public health activities and dictate the policy of the board. In 1917 our appropriation was \$25,000 for the entire state. It will be over \$800,000 annually in 1931. That takes account of the county appropriations.

The doctors of Alabama compose the county boards of health and the state board of health, so that nobody can come in and dictate the policies to the medical profession of the state of Alabama. The entire matter is in their hands.

Dr. Eugene Lindsay Bishop, Nashville, Tenn.: I would like to take just a minute or two of my own time to reinforce what Dr. Rawlings and Dr. Welch have said relative to county health work.

Without the foundation of local health organizations no state health program is going to be sound nor will it be constructive. It can not give that measure of direct local service which must be given if death rates are to be reduced and if public health is to be conserved.

In Tennessee we are operating entirely from that point of view. Our total budget is not so high as Alabama's. It has increased materially in the last few years, but of \$240,000 available from state appropriations to the department for all work, \$85,000 is devoted to subsidies or state aid for county health work. That is how we think of it in Tennessee. We plan, ultimately, to have more than fifty per

cent. of our total budget devoted to the development of county health departments.

This is a country of local self-government. Public health administration has hitherto, with the exception of city health departments, neglected one fundamental element of government, namely the local government.

We will never develop a sound program of public health administration until we have included that element of government in that department.

REVERSE MOVEMENT IN THE CONTENTS OF THE DUODENUM AND ITS PROBABLE SIGNIFICANCE*

B. H. ORNDOFF, M. D.

CHICAGO

Reviewing the physiology of the duodenum, Ivy states that absorption, secretion and motility are the three fundamental functions of the duodenum.

A study of the motor phenomena of the duodenum is very important because it very definitely expresses the state of the duodenum in all of its functions.

While it is well known that the duodenum is not a vital organ, that its entire surgical removal does not necessarily reduce the general health, it remains equally certain that improper function of the duodenum will create very undesirable physiological phenomena which may lead to irreparable pathological conditions.

The duodenum in function can be studied with considerable satisfaction in the radioscope while radiographic records are difficult to secure and usually leave much to be desired for study.

In the radioscope we are able to observe and study the reversed movements, peristaltic rushes, rhythmic segmentation and other intrinsic as well as extrinsic motor phenomena which may appear in the duodenum.

Since Ivy¹ has so recently reviewed the subject and recorded his own personal knowledge of the physiology of the duodenum in a contribution before this society, I will avoid extensive repetition of his work and endeavor to present a few findings observed during a study of the duodenum and particularly in pregnancy.

These observations have been conducted in cases throughout the different months of preg-

*Read before the Section on Radiology, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 10, 1928.

nancy. The opaque media used has been for the most part, barium water mixtures, but barium infiltrated foods have also been used.

Patients have been observed at different periods of the day, and especially before and immediately after arising in the morning.

It was more than three years ago that I became aware of the unusual motion in the duodenal contents when an opaque meal was administered during pregnancy. All of the normal motor phenomena seem to be exaggerated. Rhythmic segmentation is almost constant. Peristalsis appears at more frequent intervals and is usually a firm wave of contraction passing hastily throughout the course of the duodenum, or becomes abruptly extinct at the approach to the distal flexure. Rarely a pause may be observed at the middle flexure. Reversed movements are observed with greater than normal frequency and one experiences little difficulty in distinguishing them from rhythmic segmentation.

Where reversed movements are studied in non-pregnant cases with intrinsic or extrinsic lesions or with associated referred spastic motor phenomena, the movement is usually not of a hasty character. When such a reverse movement starts at the distal end of the duodenum there is usually a pause at the middle flexure and it ceases at the proximal flexure, only occasionally it may fill the duodenal cap. The movement is frequently lost in the mesial flexure. No particular dilation of the duodenum is observed at any portion.

The importance of these reverse movements deserve more careful observation and study since they seem to have a definite relation to the physiology of the duodenum and stomach. Cases with hyperchlorhydria and gastric symptoms, seem to have more pylorospasm and an absence of the regurgitation of duodenal contents into the stomach. Cases with bulb lesions may show considerable pylorospasm but if reverse movements show that duodenal contents are regurgitated into the stomach, we will not find hyperchlorhydria and gastric symptoms in the history. It seems almost certain that the passing of material from the duodenum back through the pylorus into the stomach has a neutralizing effect upon the contents of the stomach and constitutes a definite phenomenon of normal digestion. Reverse movements passing the pylorus are common after a heavy meal towards the end

of the gastric digestive period when the free acidity is high, and more noticeable in the prone than in the erect postures. This phenomenon serves to explain much of the symptomatic improvement noted in cases following gastroenterostomy.

Pregnancy seems to exaggerate the normal motor phenomena, and in addition, cause certain phases of motor activity which seem to me at the present time to be almost characteristic of pregnancy. The radioscopic picture is best observed during the early weeks of conception. It occurs more consistently during the morning hours. It has not been observed before the patient has assumed the upright posture. When nausea or morning sickness develops as the patient assumes the erect posture the characteristic reversed movement of pregnancy may best be observed in the duodenum.

As the first ingested portions of an opaque meal appear in the stomach, hypertonicity and hyperperistalsis of the stomach is observed with great uniformity. A vigorous gastric peristaltic wave carries the first large opaque mass through the pylorus filling the cap. After a slight pause at the proximal flexure, the cap is emptied in a forceful appearing manner, and the large mass passes hastily through the duodenum, usually showing only a brief pause, if any, at the distal flexure. There is no semblance of rhythmic segmentation nor reversed motion. Appearing in the jejunum the mass seems to mark the presence of a continued vigorous peristaltic wave, not ceasing until loops of lower jejunum or ileum occupying a position in the pelvis have been reached.

Returning to the stomach, it will be observed to resent distension with food by showing deep peristaltic incisura and an apparent attempt to empty through the pylorus rapidly. Rhythmic segmentation is observed particularly between the proximal and mesial flexures as well as between the mesial and distal flexures. These soon assume an exaggerated form which results in a heavy wave of peristalsis originating at the proximal flexure and passing through the duodenum to the distal flexure or duodenojejunal junction. Here a delay is inaugurated, and soon the movement of contents ceases. Succeeding gastric and duodenal peristaltic waves continue to fill the duodenum to more or less over distention. At this time the characteristic reversed movement

of pregnancy is observed. It is seldom initiated in typical fashion until about one-third or more of the duodenum is distended.

This reversed movement carries almost uniform diameter back through the duodenum, passing the flexures without pausing, and very frequently manifesting little or no hesitation at the pylorus. In the stomach much of the same motion observed in the duodenum prevails. Frequently the reverse movement is checked only by the cardiac sphincter and when the patient is examined while in the reclining posture, the reversed movement has been observed to continue proximalward into the esophagus and on until it was expelled into the mouth or returned to the stomach from the upper esophagus by the act of deglutition.

The duodenum is now empty except for a very small amount of opaque substance which may permit the succeeding vigorous reversed motor phenomena to remain visible. After one and in some cases not until after more than a dozen of these reverse waves have been completed, will the normal action of the stomach and duodenum be resumed.

I will not attempt to offer comment upon the anatomic and physiologic mechanism embodied in this particular phenomenon nor can I venture into a discussion of the clinical significance.

It would be interesting to know its relative constancy in pregnancy, its possible presence in other systemic and local conditions, its true relation to normal digestion, nausea, vomiting, and the pregnant uterus.

In closing I wish to say that while our observations have not yet covered sufficient material to warrant the deduction of definite conclusions, I believe that a form of reversed movement has been observed which is characteristic of pregnancy.

DISCUSSION

Dr. Alonzo B. Tenney, Chicago: I'd just like to register these observations for what value they may have:

For the last eight or ten years I have occasionally found cases of periodic headache or bilious attacks or migraine—whatever you wish to call them—in patients who had a marked degree of gastroptosis with resulting tension upon the duodenum and I assumed, without proving it, that part of the first flexure of the duodenum was put under tension by the duodenal hepatos ligament and drawn into an abnormal position.

These cases showed the presence of bile in the

gastric contents at the times that they were ill and I gave a preliminary report on those observations four or five years ago, but have not followed them up. It seems that such a masterly paper as Dr. Orndoff has presented, and such an excellent discussion as we have had, would almost preclude desultory remarks of this sort, but I just want to put that question to Dr. Orndoff as to the possible relationship of gastroptosis in the inducing of some of these conditions in a non-pregnant woman.

Dr. F. J. Ronayne, Oak Park: Of course Dr. Orndoff's paper dealt with reverse peristalsis in the duodenum as found in cases of pregnancy. I think it is an extremely hard thing at times to be very sure of reverse peristalsis. I know I have watched cases very carefully. We have never observed the rhythmic contractions that he speaks of, but we know that in some cases the meal passes very rapidly from the stomach and in some cases it is hard to identify the pyloric canal. It is probable in that type of case that very rapid reverse peristalsis occurs. That is, it is hard to say whether the meal is escaping very quickly, whether it is a true reverse peristalsis or whether the meal is escaping in a very peculiar manner and passing down the duodenum.

We have always felt that it was of significance at least in the diagnosis of ulcer. In the literature it is claimed that it is almost pathognomonic of gall bladder disease and in a case within a few months, in an unguarded moment, because I found no direct evidence of ulcer (that is, ulcer crater under fluoroscopic examination) I made a diagnosis of probable gall bladder disease because of this reverse peristalsis in the duodenum, and this was proved to be incorrect at operation because the ulcer was in the pyloric canal.

But we had stated that we had not visualized the pyloric canal at the fluoroscopic examination.

TULAREMIA*

TOM KIRKWOOD, M. D.

LAWRENCEVILLE, ILL.

Tularemia has been called the infant among the diseases of man. This is true so far as our acquaintance with it as a clinical entity is concerned. As a matter of fact it has probably been with us for years but has been hidden away in that group of infections for which we so conveniently use the shot-gun diagnosis of "septic infection." Because it is a new disease it is easy to attach undue importance to it. Because it is considered rare, it is easy to forget about it when it should be remembered. It goes without saying

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that it is not nearly so important as typhoid fever, staphylococcic or streptococcic infection, influenza, anthrax and some other serious diseases with which it is so often confused. It is not as dangerous to human life as these diseases and, excepting anthrax, will not be seen nearly so often. However, it is much more common than is generally supposed, and is of sufficient importance to justify a careful study by every practicing physician, regardless of his type of work. The prognosis alone, in the usual type of tularemia is so much better than that of the diseases for which it is mistaken that every physician should know enough about it to recognize a case when he sees one. It is unfair to a patient and his family, and in some instances to the community as well, to tell him that he has typhoid, blood poisoning, or anthrax when he in reality has tularemia. I have also seen patients where such diagnoses as syphilis or tuberculosis of the glands had been made, with the uneasy state of mind one finds in such cases. These patients were profoundly grateful on finding that the real diagnosis was tularemia after the course and outcome of that disease was explained to them.

The organism causing tularemia is bacterium tularense. It was discovered by McCoy and Chapin in 1911 while they were investigating a plague-like epidemic in ground squirrels in Tulare County, California. In 1910, Dr. Pearse of Brigham City, Utah, gave the first clinical description of tularense infection as it occurs in man in a paper entitled, "Insect Bites," which he read before the Utah State Medical Association. In 1913, Dr. Vail, a Cincinnati ophthalmologist, saw a peculiar case of conjunctivitis with marked pre-auricular glandular involvement which he thought to be glanders. Drs. Wherry and Lamb, of Cincinnati, in working out the bacteriology of this case inoculated guinea pigs with infected material and after several animal passages isolated bacterium tularense. This was the first case of recognized bacterium tularense infection in man. In 1914, Dr. Sattler of Cincinnati saw a similar case of conjunctivitis in which Wherry and Lamb again isolated the same organism and definitely traced the source of infection to rabbits found in the Southern Indiana locality in which the patient lived. In 1916, Dr. Lamb reported another bacterium tularense eye

infection occurring in a young colored girl who lived in Ohio near Cincinnati. This girl had handled rabbits a few days before becoming ill.¹

In 1919, Dr. Edward Francis, of the U. S. P. H. S., was sent to Utah to study the deer-fly fever cases which were appearing so regularly in certain parts of that State. He arrived just after a rancher had acquired the infection from a deer-fly bite and immediately inoculated animals with the disease. The animals died within a few days and necropsy showed the same lesions found in ground squirrels by McCoy and Chapin in 1911. Dr. Francis had not seen anything like it before and made plans at once to take other infected animals back to Washington, D. C. Meanwhile he had become violently ill but did not realize until long afterwards that he also had contracted the disease. In spite of his illness he managed to make the trip stopping en route in Chicago to inoculate healthy animals. On his arrival in Washington he was too ill to go on with the work so Dr. McCoy continued the investigations and soon isolated bacterium tularense—the same organism he had discovered in the California ground squirrels. The investigators decided that the ground squirrel was the source of the infection and that it was transmitted to man by the deer fly.

In May, 1920, Dr. Francis returned to Utah but failed to find any infected ground squirrels. However, a dead jack rabbit which he examined showed typical lesions of the disease so the search next centered on the jack rabbits. About five per cent. of those killed were infected. Meanwhile new cases of deer-fly fever were appearing in the ranch families in the vicinity and animals inoculated with blood from these patients developed the tularense infection. Experiments with deer flies showed that these insects transmitted the disease from infected to healthy animals. It was after these experiments that Dr. Francis named the disease "Tularemia." American investigators discovered this disease and have worked out all facts of importance concerning it.

In 1921, the disease appeared in the markets at Washington, D. C. An investigation showed that it was contracted by market men who handled rabbits shipped in from Kentucky, Tennessee, Missouri and Kansas. Quite often mar-

ket men who dressed these rabbits were infected. They called the infection "rabbit fever."

In Montana cases of "tick fever" appeared in farmers and ranchers who pulled ticks from domestic animals or who were bitten by ticks. On account of its similarity to tularemia, tick fever was investigated and also proved to be a tularense infection. Parker and Spencer² have since shown that the tick not only harbors the infection, but is also able to transmit it to the next generation through its eggs, thus handing the disease along from generation to generation and acting as a permanent reservoir of infection. Lice also are capable of transmitting the infection from animal to animal.

Bacterium tularense is a small pleomorphic organism found in bacillary, coccoidal, and bipolar forms. In nature it causes a fatal bacteremia in ground squirrels, jack rabbits, rabbits, wild rats and wild mice. From these animals it may be transmitted to man by the bites of blood-sucking insects such as the horse-fly and tick. More often, especially in this part of the United States, man acquires the infection directly by contaminating his hands while dressing infected rabbits. Hunters, farmers, butchers, cooks and market men are thus most likely to be infected. The bacterium may enter the body directly through the skin or may be carried by the hands to the conjunctival sac or possibly to the mouth. In a few instances man has been infected by the bites of animals whose mouth parts were contaminated by flesh or rabbits dead of the disease.

Tularemia is probably endemic in all parts of the United States as it has now been reported from thirty-seven states and from the District of Columbia. It was also reported from Japan in 1925.

After having studied 418 case reports Dr. Francis³ notes the following clinical types:

1. Ulcero-glandular; Starting with a papular primary lesion which later becomes an ulcer. Regional lymph glands are involved.

2. Oculo-glandular; Starting with a conjunctivitis as the primary lesion with regional lymph gland involvement.

3. Glandular; In which the lymph glands are enlarged but no primary lesion is found, the infection having penetrated the unbroken skin without having caused a local reaction.

4. Typhoidal; In which there is no primary lesion or lymph gland involvement.

The ulcero-glandular type is the one commonly seen and at present fully four-fifths of the cases reported belong to this group.

Tularemia is not contagious and one attack confers immunity. The incubation period ranges from two to nine days and averages about four days.

The constitutional symptoms are much the same in all the clinical types. The onset is much like that of influenza. It is sudden and is accompanied by chills or chilliness, general muscular pain, headache, backache, vomiting at times, and fever. The patient frequently has severe sweats. If he has had typhoid fever he is likely to insist that he is taking it again. If he has had influenza he feels sure that it is "flu" which he is taking. The fever usually reaches 103 or 104 at the onset. It persists for two or three days and then a remission occurs. This lasts about two days and is followed by a recurrence of the fever which again reaches 103 degrees, or more. Following this secondary rise there is a gradual return to normal which is reached in from two to four weeks. The febrile period is marked by great prostration and often by profuse sweats.

In the ulcero-glandular type an adenitis appears in about two days after the onset. On the third or fourth day of the disease a papule appears at the site of infection. This is usually on one of the hands. It may appear on previously intact skin or may be superimposed on a small scratch or abrasion. The papule soon becomes necrotic and this necrotic tissue sloughs out leaving a punched-out ulcer about three-eighths of an inch in diameter. This ulcer usually has a bright red base which is extremely sensitive. The edges of the ulcer are clean cut and drop off abruptly to the base. It heals slowly, requiring, three to six weeks for repair.

The involved glands are very tender and gradually enlarge until they become nearly as large as English walnuts. The skin over the glands is often red and the surrounding tissues are frequently edematous. The lymphatics leading from the site of infection to the enlarged glands some times show as red streaks. In about half of the cases the glands slowly return to normal size but this process always requires two

or three months and quite often much longer. In the remaining cases the glands go on to suppuration, the over-lying skin becoming very thin, the pus either breaking through spontaneously or being liberated by an incision. Suppuration usually occurs in from six weeks to three months. In one case which I saw in 1919 the involved glands did not suppurate until six months after the onset of the infection. In another reported case it did not occur for twenty-two months.

In thirty-three case reports studied by Francis subcutaneous nodules similar to those found in sporotrichosis were noted in the forearm and arm. These extended from the initial lesion to the enlarged axillary glands.

In the oculo-glandular cases the initial lesion is a conjunctivitis. The lids and surrounding tissues become edematous and one or more papules appear on the bulbar or palpebral conjunctiva. The lymph glands in front of the ear, under the jaw or along the side of the neck become enlarged. In some unusually severe cases the axillary glands are also involved. Permanent damage to the eye does not often occur. It is only recorded in one of twenty-three such cases studied by Francis. In this case there was a perforation of the cornea with protrusion of the iris resulting in blindness in the affected eye. In twelve per cent. of the cases reported bilateral infection of the eyes was noted.

The glandular type of the disease is not common. No initial lesion is found. A Japanese physician, Dr. O'Hara, reported seven cases of the glandular type from Japan in 1925. He described the disease and determined that the wild rabbit was the source of the infection. He at first thought he had discovered a new disease but subsequent agglutination tests demonstrated that he was dealing with tularemia.

The typhoidal type presents the same constitutional symptoms as the others, but shows no glandular involvement and no initial lesion. So far it has been found only in laboratory workers. Cases undoubtedly occur elsewhere but are overlooked. This type should be remembered in apparent cases of typhoid fever in which the Widal and undulant fever agglutination tests are negative. Drs. Francis, Chapin, Lake, Mayne and others have had this type of tularemia. It often appears in spite of the fact that the greatest precautions have been used to prevent infection

while handling diseased animals. The mode of infection is unknown.

A macular or maculo-papular skin eruption may be seen occasionally in any type of the disease.

Convalescence is very slow. The patients are all very tired and exhausted during and after the attack. Any exertion wears them out. It is usually three months before one can work with any comfort and most patients state that they can still feel the after effects for six months or even a year.

Relapses are rare and sequellae are unimportant.

The prognosis is good. Only seventeen of 418 cases studied by Francis terminated in death. The oculo-glandular type appears to be the most dangerous and in this type the prognosis must be guarded. Deaths from this type have occurred on the sixth and eighth day of the disease. Most of the deaths reported in other types have occurred in the third week of the disease.

The diagnosis can be readily made if a careful history is taken and the characteristics of the infection are kept in mind. An attack of sudden illness in a patient who has been fly-bitten, tick-bitten or who has handled rabbits should make one suspect tularemia. If the patient also has conjunctivitis or a papule on the skin with regional lymph gland involvement the diagnosis is fairly well established. A positive agglutination test made with serum taken after the first week of the disease will clinch the diagnoses. However, a correct diagnoses can almost always be made before the agglutination test is carried out.

A bacteriemia occurs during the first week of the attack and during this time the agglutination test is negative, but becomes positive in the second week. Agglutinins increase up to the seventh week. From the fourth to seventh week agglutination may occur in serum dilutions as high as 1:2560. Cross-agglutinations may occur with abortus and melitensis. This does not occur in cases which agglutinate tularense in dilutions of less than 1 : 320. Serum from a patient who had the disease nineteen years ago still contains agglutinins. The diagnosis may also be made by animal inoculation with material from the initial lesion, body-tissues or blood from the patient. Bacterium tularense has not been found in in-

infected material taken directly from man and culture mediums cannot be inoculated with such material. Animal inoculation is first necessary.

The diseases with which tularemia is usually confused are influenza, typhoid fever, septic infection, sporotrichosis and anthrax. These can be ruled out by the case history and the agglutination test. Quite often the persistent adenitis is mistaken for tuberculous glands. A radiologist recently told me that two such cases had been referred to him for treatment during the last year. Much to his credit he recognized these cases and by making the correct diagnosis saved his patients needless worry and expense.

There is no specific treatment for tularemia. Such arsenicals as sodium cocodylate and the arsphenamines have received favorable mention, but have not been extensively tried. The patient should be confined to bed during the febrile period and treated symptomatically. Too early return to active labor should be avoided on account of the prolonged prostration. This is particularly true if there has been an antecedent myocardial degeneration or renal deficiency. In glandular suppuration incision should be postponed until the gland is completely broken down and the overlying skin is very thin. Otherwise a troublesome sinus sometimes forms which is very persistent and which may require excision before healing can occur. Where suppuration is complete healing usually takes place in one or two weeks after incision.

Prophylactic measures such as wearing rubber gloves while handling infected animals and thorough cooking of the flesh of such animals will prevent the disease. Education of the public on this subject falls largely within the domain of public health agencies. Market men who dress and sell rabbits should be instructed about the disease for their own protection and for the purpose of safeguarding their customers. We cannot make expert pathologists out of market men but it is often possible for them to detect the characteristic white spots on the livers and spleens of infected rabbits and to discard such animals.

The first cases of definitely recognized tularemia in Illinois were seen in November, 1926.⁴ At that time three cases occurred in one family in Lawrence County. Two cases were seen in the same county in November, 1927, and two in

1925. I have seen sixteen cases in this one locality since 1914. Eight of these have been confirmed by agglutination tests. The others were typical cases. Nearly all of these cases occurred during the months of November, December and January—the open season for rabbit hunting.

Many cases have without doubt been missed through mistakes in diagnosis. This map, which Dr. V. M. Brian of the State Department of Health has prepared, shows forty-five (45) cases in his district. It also shows five cases in Chicago. The cases in Chicago were caused by imported rabbits. It is probable that at least three or four cases occur in each county per year.

CONCLUSIONS

1. Tularemia is a relatively common disease.
2. It is easily diagnosed and should not be so frequently mistaken for other diseases. The agglutination test offers a positive means of identifying the infection and the State Department of Public Health will make this test on request.
3. The disease will be seen in the larger cities as well as in the rural districts. Specialists must bear it in mind and be prepared to recognize it.
4. Knowledge concerning the characteristics of tularemia can be most quickly and effectively placed before the profession and the public by The Public Health Department.

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DISCUSSION

Dr. Alton S. Pope, Chicago: I would like to say a word about the five cases of tularemia we have had reported here in Chicago. The first one was in December, 1926. An industrial surgeon called it to my attention, and I might say that of the five cases reported in Chicago three have been reported by this same surgeon. Two of these were in butchers and the other three were in people who gave histories of dressing rabbits for their own use within a few days prior to onset. In three of the cases the primary diagnosis was septicemia, following wound infection.

All cases have been of the ulcero-glandular type and all were confirmed by agglutination in the United States Hygienic Laboratory.

While five cases is not a large number in a city of 3,000,000, we are satisfied that with one man seeing three out of the five cases, we are getting a great many more cases than are being recognized by the physicians. For that reason Dr. Kegel issued a warning in the *Bulletin of the Chicago Medical Society* last January. In these cases we traced the rabbits to which infection was due to Iowa, Missouri and Indiana. I understand that comparatively few rabbits from Illinois come into the Chicago market. All of these cases that occurred during the open season on rabbits are apparently due to imported rabbits.

I believe the time will come when we will have to take some means to protect the public either by requiring a period of refrigeration or some other means to guarantee the safety of rabbits we are selling in our markets here. As long as we continue to allow shipments of rabbits without restriction from the infected areas, into the cities, we are bound to get a certain amount of infection. As we have seen all through the eastern cities, a considerable number of cases of tularemia have been reported. For example, from Richmond, Baltimore, and Philadelphia and up into New York, and these were practically all due to imported rabbits.

I hope before many years we will see some satisfactory measure for assuring us that these rabbits, which are shipped in from the infected areas, are free from tularemia.

SPECIAL DIFFICULTIES IN ENDOSCOPY*

EDWIN MCGINNIS, A.B., M.D.,
CHICAGO

The first difficulty is naturally in the diagnosis. One's first thought is to use the Roentgen ray to register the area. In the case of most foreign bodies this is helpful in determining character and location of the object. Metal objects register clearly, while in the case of the radio translucent bodies the opposite is true, that they do not register at all. When the body is radio translucent, the physician may be led to say that there is nothing abnormal present.

Take the case of a youngster who had a California grape caught in the upper end of his esophagus. X-ray film was of no avail, but fluoroscopic examination with barium milk showed an obstruction in the esophagus.

Peanuts, peas, kernels of corn, usually do not

register on the plate, but in delayed cases they produce changes in the lung which can be recognized. Again a piece of roast beef which had been inspired and came to rest in a bronchus did not reveal itself on the x-ray film. This also later produced lung changes in the surrounding area which registered on the x-ray film.

I can never forget the case of a small boy who had swallowed a large overcoat button which had lodged in the upper part of the esophagus. He had some pain and difficulty in swallowing. I sent him into the hospital for x-ray examination and later operative removal of the button. The x-ray did not outline the button and the Roentgenologist made a report of nothing in the esophagus. I later removed the button.

Many cases of bristles in the larynx, trachea and esophagus, in which the x-ray did not register the objects, which have been seen directly at the end of the tube and removed.

Small thin slivers of chicken bones or pigeon ribs are difficult to determine as to presence and location in the esophagus and air passages. I have had quite a series of cases with such bones in the esophagus. This can be explained by the small amount of bony deposit. In this type of case we usually observe the patients fluoroscopically while in the act of swallowing barium milk, and in nearly all we note a splitting of the stream of milk as it passes by the lodged object. This has been helpful in a large series of cases. If Lipiodol is injected into the trachea, such objects may be outlined in the air passages, or may show closure of some part of the bronchial tree. Mayerson was helped in the diagnosis of a bronchial tumor by this means.

Some of the difficulties are illustrated by the following case:

Woman about fifty years old, perfectly well, while visiting her daughter ate fricassee chicken at a dinner party. During the meal she had a sharp, severe pain ensue, and this persisted. She consulted a physician, who administered first aid, and passed a bougie. This passed over the painful area, but did not relieve the pain. She came back home to Chicago, and in a few days consulted her family physician, who had some x-rays made. By this time her neck was markedly swollen, and swallowing was with difficulty. X-ray plates did not reveal any bone. She came to see me and we fluoroscoped her, and could not see anything in the esophagus; but when she swallowed barium milk there was a splitting of the stream, and films taken a few minutes later revealed the location of a thin

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piece of chicken scapula in the esophagus at about the suprasternal notch.

There are also difficulties due to the necessary variety of instrumentation for the removal of foreign bodies. This can be illustrated by the two cases reported by Dr. George Boot, one that of a girl with the glass bead in the bronchus, in which he had a special instrument made for removal. Dr. Patterson of Pittsburgh has had a similar experience. The other case of Boot's was the one with the open safety pin in the bronchus, which he removed with the cork-screw formed wire. I have had a couple of cases with ball bearings in the bronchi, and could not remove these until I had a special forceps made. The pioneers in this field, Ingals and Jackson, had many similar experiences.

Still another difficulty comes from the location and form of objects. Jackson has pointed out that the esophagus does not stand much insult, and most of us can substantiate this. Also children do not stand a tube in the esophagus because it shuts off the respiration by pressure on larynx and trachea. I am very watchful of children's respirations when I have a tube in the esophagus.

I had a case of a small child who had swallowed a leaden battleship with smoke-stacks and turrets and even guns, all sorts of sharp projections to catch in the esophageal wall. This had been present long enough to become lodged just above the cardiac end. It was not difficult to see, but it could not be budged either up or down. We persisted in our efforts in removal for about twenty minutes, when the child suddenly became cyanosed and we could not resuscitate the youngster. Young children do not stand asphyxiation as well as older persons.

Another case of screw in the bronchus, head up, and the head wedged tightly into the bronches, I had to have a special grasping forceps to dislodge and hold this in removal.

Thus each case that presents itself may offer unexpected obstacles to easy removal in relief of the patient, whether of difficult diagnosis, nature of instrument required or the problem of removal without harm to the tissues, or asphyxiation of the patient. The endoscopist could well wish that the case might reach him without an undue lapse of time—that is, before the inevitable difficulties have been increased by changes in the

lung and consequent liability to pneumonia, or other similar change.

104 South Michigan Ave.

DISCUSSION

Dr. H. R. Watkins, Bloomington, Ill.: I am sorry I did not have a copy of this excellent paper. In these radio-lucent foreign bodies we have found that a No. 00 bismuth capsule given by mouth will sometimes hesitate at the point of obstruction. We have our technician blue pencil the skin under fluoroscopy for location. In foreign bodies in the bronchus the work of Clerf and Iglauer on iodized oil has been valuable in questionable cases of foreign body location. Where complete history has been taken, x-ray made and physical examination completed, you are justified in doing an exploratory endoscopy. We had one patient about 60 years of age that had a stricture for fifty-five years that had never caused obstruction. Another man of 45 had taken lye as a baby. He said that his folks had told him about this and he had remembered it. That was the cause of his obstruction. Both cases responded to dilation.

Dr. S. Salinger, Chicago: I can corroborate Dr. McGinnis' statements. I had a case in which a child inhaled a toy reindeer and it was lodged in the upper end of the trachea just below the glottis, its legs imbedded in the walls of the trachea. We could not draw it through without tearing the cords, and the laryngoscope was not long enough to reach. I solved the problem by taking a larger laryngoscope, slipping it in past the cords and turning it sideways prying the cords apart, which afforded sufficient space to effect the removal of the foreign body. These small objects given out as prizes in packages of confectionery are extremely difficult to handle.

SMALL CITY HEALTH PROBLEMS*

W. F. BURRES, M. D.

Health Officer

URBANA, ILL.

By the small cities I refer to cities of 20,000 or less, even down to the large village which does not yet enjoy the distinction of being called a city. It is a regrettable truth that many of these cities were organized at a time when public health was not made a study and in fact when sickness was regarded as a visitation of providence rather than a result of conditions which could be avoided and controlled.

Location of such cities was either by accident or in consideration of commercial affairs and

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often due to ease of access with little or no regard to elevation, subsoil or drainage and sewerage, a remote possibility scarcely thought of.

Industries located on condemned or made land become the nucleus of an unexpected city in a location where no city should exist. Then, after a city is once started on low, poorly drained land, cramped area, poor sewerage, damp basements, limited air space and play ground, unpleasant environment and other problems begin. What should have been the work of a city planning board now becomes the work of your board of health.

In most cities of this size there has been set aside a desirable site known as "God's Acre" where the dead rest in fairly decent surroundings while in the opposite there is another acre designated as the city dump for want of a better name. I need not attempt to describe it and it is safe to say tersely that it is another one of the problems for the board of health. This would naturally lead to the quest of garbage disposal. It is a city problem. The small city cannot easily afford the expense of an incinerating plant and must depend on burning or what is more frequent letting it alone to become the breeding place of flies, vermin and odors offensive if not injurious and always detrimental to value in the part of the city in which located. This problem should be and can be handled by the board of health by prompt burning of city refuse and complete burial of the remainder. This can and should be rigidly enforced. There is no place in city affairs where a little advice in proper direction and if need be a fine now and then will get such good results as in the proper disposal of the city refuse.

In the larger cities garbage collection is fairly well done, but in the smaller city and the village this matter is one of some importance. Usually no proper method of removal, often in open wagons or barrels, sometimes overloaded, spilling on the street; the small householder even using the alley or back yard for its deposit. All this problem is one for a local board to handle largely by education and by arousing a sense of local pride. One block or one ward properly cleaned up even by drastic means has a wholesome effect upon adjacent territory. What is true of this by appeal of civic pride may be said of the teamster's barn and a cow stable yet allowed in many

localities. Constant watchfulness, with now and then a printed circular or pasted notice from the board and backed up by the mayor or chief of police as a last appeal will do much to bring about a clean up campaign. If there is no response, then I have found that about one good stiff fine and costs which gets publicity has the proper punch. A penalty sometimes beats preaching in these cases.

In most of the smaller cities we have the aldermanic form of government or the village board and still have the rather obsolete board of health appointed by the mayor and as a rule the compensation is such that few people can be found to accept the position. The duties are so ill defined and powers so limited that we seldom hear much of this board as to its appointment. The few duties they should perform are generally delegated to one of the police force as, for instance, the matter of quarantine, which usually consists of tacking up a red card to be taken down when the family becomes impatient, and the perfunctory fumigation and cleaning up afterward may, in most cases, just as well have been omitted. This board is seldom, if ever, consulted by the engineer, superintendent of works or by the board of local improvements, where drains or sewers are to be built. I have seen stretches of pavement built with drains to carry the water which may fall upon it, yet basements of all the adjacent property left with no regard for drainage and no thought of the health condition in future buildings in the locality, just so long as the estimate can be kept low enough to prevent objection.

Drainage of the city following this method has in many cases become a real menace to public health. Rapid and piecemeal building in various parts of the city is done, which in very few cities, is done without thought of real constructive work so far as adequate outlet is concerned. Here is where health authorities should step in and demand that the blocks of small drains and surface drains flowing—too often into an inadequate sewerage outlet should be remedied. Years of delay will only multiply the difficulty.

Isolation Hospitals. One of our problems is to care for the cases of contagion in a family where it is often necessary to quarantine the breadwinner with the family for a period of

days or weeks. Here the economic factor complicates the matter and to comply with state board requirements must mean a loss and often a hardship on the family which the local board must confront and often compromises by cutting the time of quarantine at a risk to the community. If we had proper isolation facilities this could be avoided. Perhaps a small building properly constructed to be used only when needed and closed when not in use to take the place of the old "Pest House" would be a good investment for any small city.

I have seen a city bond itself for seven or eight thousand dollars to pay for a street sweeper, buy a noisy siren for the fire department, pay fifty dollars a year dues to the municipal league, fifty dollars a year to the association of commerce, yet when a case of contagion appeared in the city, not a ward in the hospital for isolation. The board of health must scurry about and take care of it in some improvised way, always unsatisfactory to somebody, and in the end expensive to everybody. This is frequently shifted to county authorities, where we find the situation is not much improved, to say the least.

The city alley should be abandoned in all residential districts. That would solve one problem, especially the filthy privy. No addition to a city should be accepted until platted with lots large enough for a private drive to each and the alley entirely abandoned. I am glad to note that this is being done in many cities. You have seen a street sweeper at work on a pavement and the alley on either side full of rubbish. The city is praised for the sweeper and the board of health damned for the alley.

Rabies. Most small cities and villages have a good supply of dogs. In the first city in the State (I think) to pass a rabies ordinance the mayor at that time came in for more ridicule than real criticism. The joke was turned in this case very soon. Many people regarded the rabies vaccination of the dog rather as a joke than a law. Some obeyed it, many would not. One gentleman, however, who saved a dollar, had a dog bite two children as well as the owner. He paid out after the examination proved positive, \$150.00 for treatment. This fact was given some publicity as a news item and had a very wholesome effect on other offenders. This pub-

licity idea was followed up in this way. When a child was bitten we found, if possible, the name of the owner and address; then in the daily paper stated that the dog was or was not vaccinated against rabies. About one or two notices of this kind was sufficient. Dogs were vaccinated or removed by the police for want of an owner. I am not prepared to say how valuable rabies vaccination may be, but it is quite a relief to owner and parent of a victim to know that the danger is thought to be minimized. This idea of publicity can be carried out in many other cases. I think a signed request or suggestion along with health regulations is often better than a proclamation. A most valuable line of publicity is for the inspector to see that a shop or dairy is nicely cleaned up. The glowing write-up by the officer complimentary to the owner, even if exaggerated, is a piece of advertisement to be appreciated as it costs him nothing. His neighbor merchant hastens to get his name on the accredited list by exceeding the first and you have no damage suit for black-listing any unclean shop.

There is a lack of financial support to the health department, which is more noticeable to the doctors, but is never mentioned or complained of because we are accustomed to being ignored.

Of course, your fire chief is voted his expenses to attend the State meeting of firemen. The municipal league meets once a year, the mayor or some alderman attend and their expenses are paid by the city council at the next meeting. Now if there is a health officer here or a chairman of the board of health who will receive his expenses from the city he represents while attending this meeting, I would like very much to meet him or, better still, have him stand up now.

Another embarrassing thing arises with the chairman of the board of health, if he be a physician, which is generally the case and that is this—free consultation is expected. The public presupposes that he is a paid official and should not pay him for services when his opinion is sought relative to disease requiring quarantine or other supervision of the health department. I have been called to a home to decide whether a case was one of contagion or not. Often called with the attending physician to confirm his diagnosis before quarantine, some-

times a difficult thing to do. Perhaps I have been too modest or sensitive, but I have seldom ever been paid for such services. I can readily understand where the family had resided in a large city where there is a paid health physician that they are acting in good faith and thought they were entitled to such free advice and service, but in the small city, where the physician is acting the part with so little pay it becomes embarrassing to render his service free, to say the least, and how can he be paid from a budget made up about like this:

Police Department	\$15,000.00
Streets and Alleys.....	15,000.00
Lights	15,000.00
Fire and Water.....	16,000.00
Salaries	5,000.00
Bonds and Interest.....	20,000.00
Health	500.00

This proportion is no exaggeration in certain cities. The finance committee of your city council in making up this budget above referred to, reasons this way, that the United Charities, Salvation Army and hosts of other agencies, collect money for the poor and sick and that doctors are all good Samaritans and that the county will step in and help some; also that in many cities paying part of the school nurse's salary, who as such gives more free advice than her office contemplates so that the council feel that the public health will be pretty well cared for, but forget that the very doctor who is health officer is about the first fellow asked to head the list for the United Charities fund.

I have just touched upon a few of the many problems, not all of them. So far as utilities are concerned, we need notice perhaps but one, that is the water supply, a very important one in some localities. In the village where wells exist they call for most careful inspection. Milk inspection would furnish a paper by itself. The good grade of milk, generally furnished, is due very likely to the careful state inspection, but the handling of the milk in the store or shop of the dealer often requires watchfulness on the part of the health board. Handling of food is pretty well done in most cities. Dealers know the rules and regulations fairly well, and usually comply with them, but in case of neglect a hint by the board of health is usually sufficient.

Removal of pools of standing water cannot be too strongly urged. In many localities during the rainy season tin cans and other vessels form

receptacles for water and a breeding place for mosquitoes and other insects and is too well understood by the layman himself to need much short of a suggestion of its removal by the board of health. Public health work on the part of the State Board and public health workers have the people fairly well educated as to this danger. The local board can do little except make urgent suggestions to the city authorities when swamps or pools are allowed to remain in close proximity to the city.

Now, you naturally say, all you have said is very true. We have all heard this many times before. What are you going to do about it? Let me say that I have but one thought to offer as a solution, that is this, that more medical men get into and become interested in your city government affairs. Just so long as the doctor in the city regards city politics, so-called, to be foreign to his interest and fears to take part in a city election because it will hurt his business, then you must expect very little concern from those elected without the doctor's aid. One or two medical men in the city council of the small city will have more influence than all the profession outside. I am not ready to say that the council, as a rule, are not willing to help in health matters, but in many cases they need to be shown that the health means wealth to any city. The health department should be one strong arm of the city government. If a city must have twenty or thirty full time men, as they do, to run the city affairs, then they should and can afford to have at least one full time health man paid equally well.

A doctor in the council would soon see the injustice of paying a fabulous price for every printed notice of an improvement, or every ordinance, or every ballot for both primary and general election, while the health board is largely a matter of charity. I want to say to you men who have never served in this capacity that you will be surprised if you ever do so to find how easy your taxes are paid out for any purpose except one where a medical fee is involved. Of course, you will see I am referring in this paper largely to the city with the aldermanic form of government. It is hard to get those forms of cities to change to the commission form. The people generally decide as they say to be represented. They dwell much on representative gov-

ernment, but it is amusing sometimes to see how little they care who represents them. Think of the council's expense to doll up the council chamber, the city jail, the police headquarters and the objection to buy a first aid kit for the latter. They say that the doctor should carry bandages and all things necessary in case he was called to the station to take care of a drunk in an accident.

Perhaps all I have said is superfluous, but let me say in conclusion, that you will never improve this condition of city health affairs by patient silence. If you expect proper recognition, you must not beg for it, but demand it, then, if not heard, be in a position to command it, not beg.

DISCUSSION

Dr. Arlington Ailes, LaSalle, Illinois: I have had no opportunity to review Dr. Burres' paper, so being a health officer of a small city, I have thought of a few problems of my own. I qualify by being a health officer of a city of 15,000, one of 10,000 and one of 5,000.

Since listening to Dr. Burres' paper I note that he considers his problems from three angles—that of budget, sanitation and quarantine. I might speak briefly about these. Of course, personally, I have no great budget problem because our health department is endowed, and in that way it is quite unique. The matter of obtaining the required budget depends entirely upon public opinion; and to get this we need the favorable opinion of the doctors as well as all other groups and the citizens at large.

Every city has the garbage and refuse problem. Coming into Chicago by train I see that the Chicago department of health has theirs. However, Dr. Rankin, who used to be state health officer of North Carolina, says that this type of work should not occupy more than two per cent. of a health officer's time. It is not now a very big health problem, since we know it does not originate disease, except remotely and in small degree. Civic pride and other factors now stimulate our people to clean up and get rid of garbage. In fact its removal should be a function of some other department of the city government and not the health department.

The matter of quarantine is a vital problem, but it again affects the large city as well as the small one. I, myself, am a believer in modified quarantine intelligently applied. To isolate the case is the paramount factor in restrictive measures, and any procedure that tends to prevent finding the case tends to prevent effective quarantine. What we need is effective machinery to find the case, such as an active whole time medical health officer, sufficient nurses to visit the schools and the cooperation of the teachers in reporting absentees. Then with less irksome restrictions the case is much more easily gotten on record and under quarantine, because the

doctor is called more frequently and there is less objection to him reporting the case. For over a year, in our community, we have had a mild type of scarlet fever, which we have been unable to eradicate. But I feel with this modified type of quarantine we have been able to report a great number of cases that would otherwise never be known. Paradoxically though we are charged with a big epidemic and by many with inefficiency. However, we have had no deaths. I believe in the quarantine, since if it does not stop the disease it greatly slows its progress, and tends to prevent the increase in severity and possibly deaths, which tend to occur at the peak of a rapidly spreading epidemic. I believe this is all I care to say about Dr. Burres' paper.

Now I wish to speak of some other problems. One is that, where a small city or community gets an active health department they often attempt to carry out too large a health program. They are tempted to do what the larger community does. They want to rate favorably on the score card adopted by the American Public Health Association, and thus attempt more than they can efficiently carry out.

The health officer of the smaller city often needs to be his own executive, quarantine officer, sanitary officer, laboratory technician, supervisor of nurses, etc. While in the large city the health officer, if he is a good executive, will put at the head of these bureaus a trained man. And in these bureaus he may have divisions headed by expert men who receive salaries often much larger than the salary of the health officer of the small city. The large city has the personnel then to properly operate heart clinics, prenatal clinics, mental hygiene clinics and to do much other work that we in the smaller places are foolish to attempt. We have made this mistake, I believe, and have tried too much. This year we are planning to do less. Last year we examined over 3,000 school children and found a lot of defects, but due to our lack of concentration of effort, comparatively few defects were removed. We want to do at least this job better this year, and as a starter our dentists have cooperated in the establishment of a dental clinic. We now need the co-operation of our physicians in the removal of a lot of bad tonsils.

The physicians will cooperate, if a fair and sensible plan is proposed. Our physicians have already endorsed our diagnostic chest clinic and our venereal disease clinic and I believe they can be depended upon to do more. I am enthused with what I have heard here today about cooperation with physicians. You just simply can't get anywhere unless you cooperate, but the physicians should come part way and the health department should meet them fairly. However, if the physicians won't come at all, I think the health departments should stay about where they are, because little progress can be made without them.

This leads me up to the second problem that I

had in mind, that of preventive medicine. In this field I think both the physicians and health departments have a vital right. Sanitation has long been the undisputed prerogative of the health department and curative medicine that of the physician. Preventive medicine is where we dovetail in our rights, and where the line of friction occurs. Purely educational immunization campaigns on the part of the health department, in my experience, do little good. A few people become immunized but the net result is to excite opposition on the part of the anti-element, and also on the part of many that it is a scheme to make money for the doctor. As a result there is not sufficient immunization to prevent an epidemic. Surely with scientific knowledge enough to prevent epidemics, scientific men are going to be held responsible by the public for the occurrence of epidemics. Therefore health departments and physicians must get together and agree on some practical plan that will accomplish results in this field, if we are to retain the respect and confidence of the public.

Take for instance diphtheria, many cities in New York state have practically eradicated it, through the cooperation of the medical society, boards of health and the school authorities. We have had no diphtheria in our community for two years, but it will come to us just as sure as can be. We have done all we can in an educational way, by the distribution of literature and talks, but there is little immunization done. When the epidemic comes we can not use toxin-antitoxin (and I believe this remedy is no longer an innovation), but we will have to get mighty busy to prevent some deaths. The health department feels its responsibility keenly in these matters, and I believe the physicians should also. It seems like we should get together and this is the next step to be attempted by our health department.

Two years ago we had smallpox in the rural section close to our cities. The medical society met with the health department to discuss the situation. As a result they agreed to reduce their fee and authorized the health department to vaccinate all persons free who applied for such service. Five thousand people became vaccinated voluntarily as a result of this and there was no epidemic. The medical profession acted nobly. Seemingly the public did not vaccinate the preschool children during our campaign and we now find our first and second grades almost wholly unprotected. Will we now have to wait for another threatened epidemic to do more of this work? If we can cooperate then, why not before and work out some suitable plan whereby the health departments can do some of this work for suitable classes without such severe restrictions that the work is nullified. The psychology of this plan is, that there is no coercive campaign. Those that are poor or without pride will select the health department; others will see by demonstration and observation that it is really a simple thing and harmless, and will select their

physician. I think this is the only practical plan, and will result in the physicians and the health department doing more of this work, the public becoming immunized and retaining their confidence in scientific medicine. Our department is not going to do this, however, unless the physicians agree, as we recognize we must have them with us.

Now the third thing I had in mind is the minor difficulties, but which in reality are sometimes major in their accumulation. I refer to "What the doctor said" and "What the nurse said," etc. There are apt to be many little misunderstandings that amount to nothing when explained. For instance, a doctor complained that he had left strict orders for a child to stay in bed, but when he visited the case the patient was up, and the mother offered the excuse that the nurse said the patient could be up, which the nurse denied. Another case was where a doctor had ordered a feeding formula for a child and the mother did not prepare it properly. The child did not do well and the mother consulted the nurse, who showed her how to prepare the formula. The result was all that could be expected and the doctor somehow became informed that the nurse had prescribed a formula. The error, of course, here was that the nurse should have promptly informed the doctor of her action, but it is difficult for the nurses to always inform the doctor of every little thing they do for them. Another instance I had recently was where a nurse had told a mother that she didn't need to call a doctor for a case of chickenpox. Here is a troublesome proposition. I consulted several physicians about it and the most of them expressed the opinion that they didn't want any nurse to ask that they be called for a mild case of chickenpox. One doctor said he would feel like a fool to be called to such a case, give little advice, no medicine and have to charge three dollars for it.

Nurses do have a hard time being discreet, diplomatic, etc., but we have on record dozens of cases where our nurses recommend that doctors be called, and there may occur one indiscreet remark like the above to dozens of these recommendations. Personal talks with the physicians help to straighten out specific cases like these. Some doctors need to understand more clearly public health work. The other day a doctor asked me what our tuberculosis nurses did. He complained that they went to a case he knew about and that they didn't bathe the patient, change the bed in any way or attempt to make the patient comfortable. I told him that our nurses were public health nurses and not bedside nurses, that bedside nursing was otherwise provided for. Our nurses are to educate, to try to get the case to the sanatorium and away from the family, to show him how to care for his sputum, to get fresh air, to keep the children away to prevent infection, to look after the nutrition of the children in order to build up resistance, to prevent new cases. The doctor saw the value of this type of work and thought better of the program.

I am enthused about this meeting, especially Dr. Needham's paper. If you get the doctors together lay out your problems, call a spade a spade they will say "go ahead," if you have a worthy proposition. Physicians are public health minded, if they understand the need for an action.

In summing up my discussion and closing, I will say that we need to know our limitations, solve these problems of preventive medicine and understand each other.

IVORY IMPLANT IN ATROPHIC RHINITIS*

L. BENNO BERNHEIMER, M. D.

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Treatment of a pathological condition is apt to be unsatisfactory if its specific etiology is unknown and often even the relief of symptoms in such a case is not accomplished. Indeed, even in the presence of known etiology, treatment is too often merely palliative.

The condition known as atrophic rhinitis presents such a situation, description of the etiological factors of which are manifold, the real causative agents, however, remaining unknown, except in those cases resulting from lues and responding to antiluetic treatment. Perez believed that he had found a specific organism for the disease and developed a vaccine which Hofer subsequently modified. The clinical data in connection with the use of this vaccine, however, has not been sufficient to justify its claim, although it still continues to be used abroad. In the light of these facts we cannot truthfully say that cure has been accomplished in atrophic rhinitis and that the best we can do, in our present state of knowledge, is to afford relief.

Persons suffering from atrophic rhinitis associated with ozena, have three chief complaints, viz: foul odor, dry throat, and crusting. The usual findings, on examination, are atrophy of the soft tissues of the nasal interior associated with the resulting increase in space of the nasal cavities. Experience proves that the reduction of this space to its more normal dimensions has some beneficial effect on the process of crusting, which it seems to abate in varying degree, in some cases actually affording a control, while the ozena decreases in intensity or disappears alto-

gether, and the pharyngeal symptoms become greatly lessened.

Obviously, there is no known medical procedure that will effect this necessary reduction in space. Clearly, some form of surgical interference is indicated. Of the various surgical procedures described in the literature, two are worthy of note, viz: the so-called Holley-Lautenschlager method which consists of displacing the lateral nasal wall toward the septum, and the introduction of various substances under the mucous membrane of the septum and the nasal floor. The former involves a technique that presents many difficulties, and objections, not the least of which is its extreme radical character. Indeed, the results of such an operation, when successfully executed, do not show any virtues above those obtained by the simpler method of transplantation. It is in this connection that the following has been noted:

Various substances have been employed in submucous transplantation, such as paraffin, autogenous and heterogenous tissues, and ivory. Although paraffin still continues to be a favorite method used by those abroad, in this country it has fallen into disuse because of the well-known danger of occurrence of paraffinoma. Autogenous transplants such as bone, cartilage, and soft tissue of mesoblastic origin are still used quite universally, but this method also offers several objections, the most salient of which are: first, the necessity for operating fields distant from the nose, with its attendant added discomfort to the patient and increased surgical risk, especially in the case of costal cartilage excision; second, the difficulty presented by the necessity to shape the transplant at the time of operation, with its great danger of contamination; third, the fact that these transplants are known to become absorbed altogether thus obviating the desired end, or to slough out with as great a frequency as any other transplant in which event they can rarely be saved. The method of heterogenous transplantation offers the same objections and presents the same obstacles plus the added difficulty of procuring the tissue from another person. Most of the foregoing objections do not hold in the case of ivory which thus presents itself as a very satisfactory transplantation medium. To enumerate the points in favor of ivory in justification of its superiority to that of other media for trans-

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plantation: first, a constant supply may be kept on hand being readily accessible for use at any time; second, it may be prepared at any time prior to operation; third, it is subject to the most drastic method of sterilization, viz: the autoclave; fourth, although strictly speaking an inanimate substance, it is really an organic biologic material and though subject to some degree of absorption is well tolerated.

The ivory is shaped by a grind-stone run by a small motor, being ground out into spindle-shaped plates varying from one to three centimeters in length, one quarter to one centimeter in width, and one-eighth to one-quarter centimeter in thickness. Pieces of this size are used, being small enough to be tolerated by the mucus membrane which will not tolerate the ivory if the ivory subjects it to tension. Multiple perforations are made in the spindle by a dental burr. These perforations serve two purposes, 1. to lighten the piece, and 2. to facilitate anchorage by allowing granulation tissue to grow through them. The transplants are thoroughly sterilized by boiling before being introduced into the nose. If the nasal space is to be diminished by building out the septal wall, the usual technique of the submucous resection is performed up through the point of mucoperichondrial separation. The transplants are then introduced between the mucoperichondrium and the cartilage, two or three pieces being employed rather than one large piece, the latter being not so well tolerated. An attempt is made to give each transplant an individual pocket—the size of which is just large enough to accommodate the transplant without causing any tension of the mucous membrane. No stitches are taken, a light pack being all that is necessary to keep the pockets closed. If the nasal space is to be diminished by raising the floor of the nose or by building out the inferior turbinal bodies the same operative procedure holds, with the exception of the site of incision. It is perhaps wiser to operate on only one side of the nose at a sitting, operation on the other side being postponed until the first field is thoroughly healed, which varies from two to six weeks. This will help to prevent the occurrence of septal perforation which seems to be associated with the unavoidable trophic disturbance in the cartilage. Post operative treatment consists merely in keeping the nasal

cavities free from discharge and the mucous membrane moist by any of the accepted methods. For stimulation of the mucous membrane we employ scarlet red emulsion, and glucose-glycerine as an adjunct in cleansing.

We have found this procedure simple to perform and the results satisfactory, although palliative. The crusting often ceases altogether, ozena disappears, and the pharyngeal mucosa becomes moist. It is essential, however, that the patient carry out daily routine measures in connection with nasal hygiene, and report at intervals of two to three months for checking up. In the event that the ivory implant sloughs it is easily reinserted after healing has taken place.

CONCLUSIONS

1. Until the specific etiology of atrophic rhinitis becomes known, treatment of this condition can only be palliative.
2. Any procedure that reduces the intranasal space will relieve the symptoms of crusting, ozena, and dryness of the throat.
3. Ivory is an ideal medium for the accomplishment of this purpose.

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DISCUSSION

Dr. Harry Pollock, Chicago: This paper is very interesting to me because it has been about five years since I first used the ivory implants in this condition and I expected to hear something new from Dr. Bernheimer and was surprised that he failed to mention anything new. It is true the etiology is unknown and the treatment, so far as I have been able to discover so far has been of no value, either when there is ozena or whether it is absent. You give them daily treatments, keep the crusts washed out of the nose, so they will be more comfortable, but they will still complain of secondary pharyngitis and laryngitis which most of the secondary cases have. All the good points that the author mentioned I can verify. I want to take one exception. He says that is a palliative measure. I disagree. I have shown cases before various societies and clinics that have been cured, relieved of all their symptoms for a period of as long as five years. They do not use any daily routine treatment, and the nose is in as good shape as anyone's can be. One thing is, not to use any local treatment after operation. This is not 100 per cent. cure, and in the earlier cases that I did, I met with a great many failures. There are several reasons to account for it. The extra large plugs I used—some as large as my thumb. I did not even perforate these inlays, but lately I have been perforating them, using a larger number but smaller size. You

can place them in position better than one large implant. Several have sloughed out like any other implant. They will become infected at times. I leave them in as long as they will stay, sometimes six months, then take them out and in the meantime a large amount of connective tissue has formed. You will find the septum bulging out as large as when the transplant was in place. My results have been very satisfactory and very gratifying to the unfortunate patients.

Dr. Bernheimer (closing discussion): In answer to Dr. Pollock, I wish to say that this paper was not written with the idea of outlining a new technique for ivory implantation, but simply as a clinical report on the results obtained by this type treatment of atrophic rhinitis, and to outline a modified method by which the author obtained the best results. Furthermore, I wish to reiterate that this method is palliative and not curative, which conclusion has been reached through an experience of more than five years.

TREATMENT OF NON-MALIGNANT SKIN DISEASES*

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It seems almost a needless redundancy to attempt a presentation or review of a subject which is ably presented in standard text-books and has a voluminous literature of its own. Thus it becomes necessary to touch only a few high spots and give a general classification of those non-malignant diseases of skin after all possible malignancies have been subtracted by careful diagnosis. This means that those practicing according to the subject matter should not only be versed in proper and adequate radiation technique, but should also have more than a general knowledge of dermatology.

Roughly, the skin from within outward rests upon a subcutaneous connective tissue overlying the deeper structures; external to this is the corium or true skin, and lastly, an outermost coat, the epidermis or cuticle. This integument contains coil glands, sebaceous glands, hairs, nails, blood and lymph—vessels, muscles, pigment and nerves, all of which are subject to departures from normal and which vary in structure according to the physiology. In the human skin the cells of the germinal layer, hair papillae, the sebaceous and sweat glands, the endothelial cells of blood vessels and fixed con-

nective tissue are radiosensitive while the non-nucleated elements, as the hair and elastic and collagenous connective tissue are only slightly susceptible. Histologic tissue changes consist essentially in nuclear swelling and hyaline degeneration with early and persistent inflammation, reaction seen mainly in the papillary layer and consisting of perivascular thickening and edema. In passing, it can be stated that direct bactericidal action on bacteria in tissue by irradiation cannot be obtained without serious damage to the tissues.

The non-malignant skin diseases subtracted from the general accepted or total accepted leaves those groups which are not due to definite cell change or degenerations: might subtract again the acute exanthemas. For the purpose of a working diagnosis, and not in an effort to be theoretical, this remainder in our work has been classified as those due to changes in; 1. skin glands; 2. the inflammations; 3. parasitic and infections which make up the great bulk of those we are called on to help treat, as they include nearly all the erythemas and eczemas; 4. the atrophiae; 5. the hypertrophies; 6. the purpuras and 7. the neo-plasms or new growths. (These last are divided into groups comprising those of the pigment, the epidermis and papillary layers and of the connective tissue.) 8. Synovial lesions and lastly 9. the neuroses.

The effect of radiation upon normal and pathological tissues of the human body is fairly well known. This effect is dependent largely upon the amount of radiation absorbed, and the biological activity of the cells radiated. It is also influenced to some extent by the character of the surrounding tissues and the condition of the organism as a whole. The tissue to be irradiated is of as much importance as the rays. This implies selective absorption and that the more rays absorbed, the more the tissue is affected. Highly differentiated structures are more sensitive than connective tissue, and pathological embryonic structures than fixed adult ones. The foregoing statements are made in general and simply as reminders: to open up the study of biological effects in detail would carry us far from the subject. Investigators of London Radium Institute believe that living cells do not react toward radiation in a peculiar manner, but that like all living matter in general they react toward nearly

*Read before the Section on Radiology, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1928.

all adverse environments. Failures in radiation in malignancy are due to escape of a minority of highly differentiated cells requiring large doses for definite change with a possible injury to the surrounding tissues.

If I may be permitted, I wish here to present a preliminary report or communication on a study which I am finding of some assistance as a general guide or insight into the pathology of skin lesions, rather than an aid to clinical nomenclature.

Anyone experienced in some of the properties of ultraviolet radiation is probably familiar with these facts:

1. Many living tissues show curious degrees of fluorescence under properly filtered ultraviolet. For example, the keratin tissues assume a pearly white and occasionally a bluish fluorescence. This same fluorescence is shared by the vitreous humor of the eye. Gray hair shines; natural blonde hair shows a multitude of colors, while artificial blonde is monotonous; black hair inhibits fluorescence. Pigmented warts do not fluoresce, but when keratin predominates they become a vivid white after fluorescence. Pigmented or depigmented areas are readily differentiated and patches of vitiligo which are so faint as to be imperceptible, become visible. Hair dyes, arsenicals—so-called hair tonics, salves, etc. can be distinguished when not visible by ordinary light.

2. Certain exanthemas develop changes in the skin unsensed by the naked eye; but if such skin is exposed to ultraviolet radiation, properly filtered, and photographed, a finished photograph reveals the characteristic outline of the lesions which will subsequently develop and become visible to the naked eye. In this fashion, the skin transformations can be anticipated by several days through ultraviolet illumination and photography.

3. In the method of ultraviolet filtration, a substance which effectively excludes visible light is satisfactory for the purpose of revealing the above phenomenon. A suitable method consists in interposing a special glass. A more effective filter is that devised by the Robt. W. Wood and designated as the Woods filter. It is said to consist of iron and lead-free glass heavily pigmented in the pot with a high percentage of nickel oxide.

From these facts, it seems clear that cell modification can in some instances be detected through the use of ultraviolet radiation. In general, the modifications are those in which the trophic control of the skin has been lost through accident or disease. For example, it has been claimed that in spinal injury, localized, the metameric segment of the skin which corresponds to the nerve distribution of the injured segment suffers changes which become obvious through usual diagnostic measures, but in anticipation of their visibility, the ultraviolet photography discloses the segment with marked characteristics so as to be of considerable diagnostic value.

This mechanism suggests that areas of skin which had been exposed to energies capable of effecting some measure of destruction, as for example, x-rays, gamma rays of radium, permits an important diagnostic agent to the Roentgenologist. In proportion as the skin has lost some of its vital functions, it manifests a commensurate degree of fluorescent response to ultraviolet radiation. When complete trophic control is lost, and the epidermis undergoes pronounced acanthosis which may lead to marked keratosis, the fluorescence is particularly marked. Areas of keratosis are especially bluish in their ultraviolet fluorescence.

The Roentgenologist may take the fluorescence produced by an obvious keratotic area as an index of severe damage to the skin; and he may take the complete lack of fluorescence as an index of the absence of damage. With these two points fixed, any appreciable degree of fluorescence immediately suggests a corresponding measure of skin affection.

Using such an arbitrary scale as a given point in further research, the following observations and tentative conclusions seem probable: 1. The skin which has received treatment by an agent such as x-ray or gamma rays, may be so modified as to fail to disclose any obvious symptoms to the naked eye. Such a skin is nevertheless at the danger zone and would be particularly prone to x-ray or radium damage if additional radiation were supplied. Such a skin exposed to ultraviolet radiation by the method above outlined would reveal a degree of fluorescence which serves as a clinically valuable criterion from which to judge whether or not further x-ray

or radium treatment can be applied without harm.

It is obvious that ultraviolet fluoroscopy can serve a helpful purpose to the careful Roentgenologist. An illustrative example will make clear this purpose. Imagine a skin lesion which has been refractory to the usual dermatologic unguents and the like. Such a lesion then receives x-ray treatment, perhaps by the dermatologist. The x-ray can fail in clearing a number of lesions but they leave their invisible drastic imprints on the area of skin which has been exposed to the rays. Such a case is subsequently referred to the Roentgenologist who may, but usually may not, be informed of the previous failure of the x-ray. An additional and properly intensive x-ray exposure is afforded with the ultimate result that characteristic necrotic changes are induced with symptoms and consequences too familiar to require repetition. In such instances, the method of ultraviolet fluoroscopy above proposed is exceptionally valuable. It furnished an apparently definite, simple and effective means of warning the Roentgenologist not to apply x-radiation or gamma rays of radium until the first skin changes have so dissipated themselves as to bring back a reasonably normal condition upon which x-ray may then be administered. In the second place, the lesions themselves, apparently, in a number of instances may fluoresce in so characteristic a manner as to disclose certain other forms of treatment, perhaps exclusive of x-ray, which the therapist can instantly institute to the benefit of the patient.

There are, of course, innumerable ramifications to the diagnostic and prognostic possibilities of ultraviolet fluoroscopy. Complete and adequately conducted research will unquestionably bring many of these possibilities to clinical fruition; already, it seems to me, ultraviolet fluoroscopy can make a valuable contribution in safeguarding the interest of the patient and skill of the therapist.

Aside from these intensive considerations a rich field of research upon which I hope in the future to make further report, grows out of the work of the Russian and German investigators.

I refer now to the work of Reiter and Gabor, German investigators who repeated and confirmed the work of the Russian Gurwitsch. ("Ultraviolette Strahlen und Zellteilung.")

These investigators discovered that during the processes of mitotic division of cells, the mechanism was characterized by the evolution of ultraviolet radiation. By means of suitable ultraviolet spectroscopy, they showed that wavelengths of ultraviolet generated during this process were in the region of 340 millimicrons (3400 Angstrom Units).

It is perfectly well-known that radiation will absorb wavelengths which fall upon it and which are of the same order of magnitude. A common experiment makes this clear. A flame of the Bunson burner can be made yellow by introducing common salt at its base. This is the characteristic yellow sodium line. If in the path of such a yellow flame, one places a second yellow flame, the proper wavelengths are absorbed by the second flame in great amounts; but if the second flame is devoid of yellow lines, the energy passes through the yellow with no obstruction. If now this common phenomenon is applied to ultraviolet fluoroscopy, this significant fact emerges. Filtered ultraviolet radiation has its peak in the region of 340 millimicrons. Such radiation falling upon live cells meets the radiations called mitogenic ultraviolet in cells, and is absorbed by those cells. There is, therefore, no reflection or fluorescence. Now, if similar radiation falls upon cells so impaired that no mitogenic ultraviolet is resident within them, the incident ultraviolet ray is instantly reflected with the characteristic fluorescence.

From these considerations, it appears that a deeper and more significant research suitable for intensive investigation is a measure of cellular vitality as recorded by ultraviolet fluoroscopy.

Especially valuable, it seems to me, should be the application of this principle to the study of malignant virulency.*

As to radiation treatment. I have nothing to add, but could quote extensively from my favorite MacKee whose presentations are certainly very fair toward roentgenologists and I quote wholly the paragraphs under "Radiologist and Dermatologist." He says:

Dermatologists have not been sufficiently progressive. Ten or twelve years ago nearly every dermatologist possessed an x-ray equipment, although few of them knew much about the subject of roentgenology. They failed to keep pace with a young, vigorous, progressing science and finally discovered

*Strahlen Therapie—1926.

that roentgenology had evolved into a highly specialized and complex subject. Furthermore, even the x-ray treatment of the diseases of their own specialty had been transferred to the pure roentgenologist, men who were x-ray experts but who had little if any knowledge of dermatology. Between the technical errors of the dermatologist and the diagnostic errors of the roentgenologist the evolution of superficial roentgenology suffered considerable retardation. Even today the subject is neglected by a large proportion of dermatologists of this country. There are very few medical colleges that give the student a reasonable conception of the advantages and limitations of dermatoroentgenology. Dermatologists have simply been too lethargic, too indifferent and too mercenary to become and to remain modernized in this rapidly changing and ever progressing field.

It is difficult to resist the temptation of reminding dermatologists that they are losing control of syphilology for the same reasons. If this retrogression continues dermatology will indeed become a minor specialty. It is time for dermatologists, especially the younger practitioners, to develop more energy and efficiency. Many young men enter the field of clinical dermatology because it offers a path of slight resistance and an easy although not always a lucrative field. Dermatology, if it includes histopathology, syphilology and radiology, is a difficult specialty to master and one that is worthy of great minds.

Every dermatologist should be well acquainted with the possibilities and limitations of roentgen therapy and radium therapy. He should recognize reactions and sequelae and understand the reason for them and how they may be avoided. He should understand the biological action of the radiations, and he should know which diseases respond readily to small doses and which require strong applications. Otherwise, how can he work in collaboration with the roentgenologist? Most roentgenologists know very little about dermatology and they are, as a rule, very grateful for help and advice. The ideal, however, is for the dermatologist to be his own radiologist.

The fundamentals of modern technic can be acquired in a short time but one must not stop here. Every person who prescribes x-rays or radium for use on the human organism should endeavor to learn all there is to know relative to these agents and the study will include history, physics, electricity, biology, technic, etc.

In addition to MacKee's technique we are beginning the use of the Grenz ray: This 2A unit technique is proving very satisfactory in the lesions limited largely to the epidermis.

The unit dose as given by Eller and Bucky is considered to be that which would produce a mild erythema on forearm in from 12 to 24 hours after exposure. Their summary is sub-

stantially as follows: A maximum of 2A is employed. A beam such as this has not been used until recently. The older roentgenologists thought they were using long waves, but were really using shorter ones than the Grenz ray.

Patients with various constitutional diseases are said to respond favorably to the Grenz ray.

Unfavorable sequelae such as atrophy and telangiectasis have not occurred. Erythemas may be produced without depilation.

For general or basic use the Ready reference table for superficial Roentgen Therapy by Beets and Arens should be in the laboratory of every roentgenologist when acting in the role of the dermatologist, and on the desk of the dermatologist when posing as a roentgenologist. Our variation from theirs is that I use 16-inch distance instead of 15 as the mathematics are easier.

The reactions from x-ray treatment of non-malignant skin diseases are fearful at times and can vary from erythemas of mildest degree to third degree and the trained roentgenologist should be able to guide the exposures to avoid these. When this millenium is reached insurance rates will come down.

MOST COMMON LESIONS PRESENTED TO OUR LABORATORY

Eczemas	54%
Dermatitis	12%
Psoriasis	5%
Acne	11%
Cellulitis	9%
Furunculosis	1.8%
Herpes	1.7%

Exact results not tabulated as the follow-up is not complete, but the increase in work referred for treatment for the last three years is about 400%.

DISEASES CLASSIFIED AS TO TREATMENT*

Group 1. X-Ray on Radium Sole Means of Cure:

Bromidosis, localized.
Dermatitis papillaris capillitii.
Favus, of the scalp.
Hyperidrosis, localized.
Keloid.
Rhinoscleroma.
Tinea tonsurans.

Group 2. Irradiation Most Useful:

Granuloma fungoides (mycosis fungoides).
Hodgkin's disease of the skin.
Lymphogranulomatosis cutis.
Sarcoma, Kaposi type.
Sarcoma, giant cell.
Leukemia cutis.
Pruritus.

Group 3. Excellent Results in Some Instances:

Acanthosis nigricans.
Addison's disease.
Granulosis rubra nasi.
Keratosi follicularis.

Kraurosis vulvae.
Parapsoriasis, lichenoid type.

Group 4. Roentgen Therapy Specific; Other Means Successful:

Actinomycosis.
Angioma, cavernous.
Angioma, senile.
Angioma, strawberry mark.
Blastomycosis.
Carbunculus.
Callositas.
Granuloma annulare.
Lupoid syphilis.
Lupus miliaris disseminatus.
Scrofuloderma.
Sycosis vulgaris.
Synovial lesions of the skin.
Tinea barbae.

*From X-Ray and Radium in Treatment of Diseases of the Skin. By George M. MacKee, 2nd edition, 1927, page 405.

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DISCUSSION

Dr. Henry Chapin, Jacksonville: I hope Dr. Grote will follow out this line of investigation and report to us at a future meeting as to his findings both as to diagnostic and therapeutic value of this treatment.

I wonder if we really are not making a mistake in our treatment of our skin lesions because we all remember that our results in skin lesions were very satisfactory when we had to depend upon the old static machine, when our wave lengths were entirely different, the output of our machine was quite different and I remember hearing Dr. Grube say some time ago that he was getting better results in treating skin lesions with his old static than he was by

the modern machine. Possibly that might be accounted for by having the longer wave lengths. Some have recently advocated the wave lengths not over ten kilovolts, even to seven or five kilovolts.

I wish to speak of just a few conditions which it has been my privilege to treat and the results have been very satisfactory. Probably as common a condition as we are called upon to treat, or possibly the radiologist is not called upon because of the fact that the laity and the physicians generally do not know that we can with radiation relieve such painful and distressing conditions as callosity. I have found even with very large callouses, some as large as a dollar, on the bottom of the feet, that were quite painful, the patients would come in and by giving one comparatively mild treatment, ask to return in five days, and by taking a curet you can usually scrape off some of the surface and the patient says that immediately there is some relief. Usually at the end of ten days another treatment is given and the patient is kept under observation. I have found that these callous conditions are entirely relieved and in the course of one to three weeks you can scrape off all that tissue and it leaves a perfectly soft, healthy skin.

The same is true of plantar warts. I have had some very distressing cases of plantar warts and they have responded equally well to radiation. Herpes zoster will respond quite readily to a combination of x-ray and ultra-violet. It has been my custom, as soon as I see the herpes zoster, to give x-ray treatment over the back in the region of the involved area and it is surprising with what rapidity we will get complete relief from pain—if not complete, there is certainly a very decided relief in from two to six hours.

Then I have always followed that up by giving the body treatment with the ultra-violet light and it seems that the recovery is much more rapid. We certainly do reduce the pain if not entirely relieve it.

I have had a few cases of pompholyx which responded. Of course that is self-limited but apparently in these cases under a mild treatment of radiation they were relieved.

Of course we all have cases of furunculosis and they respond uniformly well, I think, to mild treatments.

Ring worm is another condition that I have treated considerably. We had quite an epidemic of it in a state institution where I was consultant radiologist. I gave radiation treatment, usually two to three treatments would entirely relieve the condition. I do not give very intensive doses. I didn't even get a dermatitis, but I did get relief in those cases. In some cases I gave the skin dose but I think in none of them were more than five treatments given with complete relief.

In keratosis, which we know is a potential cancer, I use the radium preferably, make an application of radium, or I'd give an x-ray treatment and follow that with desiccation and I find they clear up very nicely, leaving no scar. Of course if I feel

that it has already undergone degeneration, then I'd give a heavier dose of radiation and treat it as though it were cancer. I believe we are justified in always treating a doubtful case as though it were malignant.

I have treated keloids both with radium and x-ray and I prefer the radium in treatment of keloids. It is slow, sometimes takes many weeks or even many months for the keloid to disappear but results have been very satisfactory.

As to acne, I think we all rather dread to see acne come. Results have been very good but I hesitate to give the intensive doses in acne that I think probably one should give to get a real prompt result. In my acne cases I prefer to treat with x-ray and ultra-violet, preferably the body exposures of the ultra-violet, and we find that they do clear up after a certain length of time and leave the skin in a very clear, smooth condition.

Of course skin conditions will respond to radiation of different sort. I believe when we are treating we should resort not alone to x-ray, radium desiccation coagulation or the infra-red; but all of them in more or less combine form will give us the best results.

I have had within the last few years approximately two hundred cases of carbuncle. A surgeon says, "Are you sure they are carbuncles?" He was very doubtful about one having the opportunity of treating that number of cases of carbuncle but many of these cases were treated at the state institution in Jacksonville and there were a very large number of cases. Recently there have not been so many, but in every case of carbuncle the results were satisfactory. The patient would be relieved of pain in from six to twenty-four hours and within probably forty-eight hours you'd find instead of several small areas discharging sinuses, that would be in one large mass and you'd get very quick drainage.

A small incision is necessary, of course, if the pus is confined but not a radical operation and no large incision. The one great beauty about the irradiation treatment of carbuncles is first you get your relief from pain very promptly, you are not subjecting your patient to the shock of an operation and the resulting scar is very, very slight.

Usually I give two treatments in treating carbuncles.

I wish to mention the quick relief from pain in another condition. Possibly it is not in place here, but recently I had a patient come who was suffering intensely with bursitis. He hadn't been able to sleep for two nights and two days. I suggested we give him an x-ray treatment, which I did, and that was along about two o'clock in the afternoon. The next day he reported to the office and said he had complete relief from pain by nine o'clock that night and he suffered no pain from that time on. Naturally I concluded that the x-ray was responsible for the relief of the pain in that bursitis because it followed so promptly and along about the course

that is usually followed in relief of pain in treating carbuncles.

It has been suggested that possibly every case of pyogenic infection would be greatly benefited by irradiation. I believe we have a large field here of investigation and work, but I think we hardly yet realize the advantages or the possibilities of irradiation in the treatment of many of these conditions and especially many of the painful conditions.

I used in the carbuncles a hundred kilovolts, five milliamperes, filtration of four MM of aluminum, twelve inches distant, five to seven minutes.

Chairman Swanberg: That is about sixty per cent. of an erythema dose, isn't it?

Dr. Chapin: Yes. Sometimes I will repeat that on the third day following, but I believe I really get better results, quicker relief from pain on five minutes than I do when I give seven or eight minutes.

For the bursitis I used 120 kilovolts and the five MA, four MM aluminum, fourteen inch distance for seven minutes.

Dr. Williams, Danville: Failure to discuss any paper by Dr. Henry Grote would be overlooking a golden opportunity. Dr. Grote has given us some things that are absolutely new to me. His work in fluorescence is so new that I am startled with it and I want to spend some time talking with him later on it.

The statements by Dr. Grote and Dr. Chapin concerning the combination treatment by x-ray and ultra-violet, using a low voltage x-ray and the ultra-violet, would seem to indicate that our pathological condition is picking up something from the x-ray and something from the ultra-violet, neither one of which is sufficient in itself, and we begin to wonder if it is picking up the longer end of the x-ray, the shorter end of the ultra-violet, and coming into that field between the two which is being represented now in the so-called Grenz ray?

I have seen no work with the Grenz ray, I know nothing of it. There has been considerable publication on it.

It is claimed by some who have used it across the water that it is absolutely harmless, that it affects only the extreme outer layers of the skin and cannot product telangiectosis, while somebody else has shown it can do this. I don't believe that anything like the Grenz ray that is closely related to the x-ray can be absolutely harmless, but with proper control it can be very valuable.

The field where the dermatologist or radiologist and the surgeon are coming in contact, through carbuncle treatment, is becoming more and more acute, as there is room for discussion between x-ray treatment of carbuncle, the incision with the electric knife and surgical incision.

I have within the past few weeks succeeded in carrying one carbuncle through in spite of the great desire of a surgeon to operate and I was determined this case was going to go through absolutely without surgical interference if the patient's

condition warranted. At the time I saw it, the central part of the carbuncle was about four centimeters across, a very unpleasant looking affair. I gave, right into the crater of this, trying to avoid the skin around it, three skin units of x-ray. Within forty-eight hours the patient was free from pain and the surgeon again was determined to excise it and I said "No."

Within about five days the center of the carbuncle broke down, the man had no pain outside of the fact that his neck was stiff and he was uncomfortable, he went on to a complete recovery within about three weeks. I don't know what it would have done had he had surgical treatment.

I hope Dr. Grote will follow up his work on the fluorescent photography and the visible fluorescence of this work because it is extremely interesting.

Dr. G. E. Pfahler, Philadelphia: Mr. President, I will not take time to discuss this but I would like to ask for some information.

I know that I got in late for Dr. Grote's paper, but I would like to have him just summarize the technique of obtaining this fluorescence and photographing it so that I at least can go home and do likewise.

Second, I'd like to know whether this fluorescence enables him to distinguish between malignant disease and non-malignant disease, as I assumed he expected to do by the warty growths on that nose case that he demonstrated on the screen.

Third, I'd like to ask what is his method to obtain satisfactory results in the treatment of port wine stain. So far I have not learned of any method of treatment that is really satisfactory.

Fourth, I'd like to ask just what he means by synovial lesions of the skin.

Fifth, I'd like to ask Dr. Chapin of Jacksonville what is his dosage in the treatment of a carbuncle; also what is his dosage in the treatment of herpes zoster and whether he applies the ultra-violet rays over the same area to which he applies the x-rays.

I would like to caution every one to realize that they are using a double irritating agent when they are using the ultra-violet plus the x-ray. Of course, if you use half dose of each, you can get away with it, but don't attempt to use both as was suggested by Dr. Sampson. We carried out some very convincing experiments showing that you get a very damaging effect if you attempt to use both at the same time.

I would also like to ask these gentlemen and anyone present whether they have used the x-rays in the treatment of phlebitis, which is one of the inflammatory conditions. I know it has been used in nearly everything. I happen to have a very close surgical friend in whom I have recommended it but purely on theoretical grounds and not because I have had any experience. I'd like to know whether I can go back and tell him that it will do some good.

I would also like to ask Dr. Grote in what class of cases the Grenz rays are superior to the x-rays so that we have something specific. Also what

apparatus he has found entirely satisfactory. The Grenz rays, as I understand them, if you will study the spectrum, are really very soft x-rays and, of course, Dr. Buckley even speaks of that, but it seems to me that when we are using the Grenz rays, we ought to realize that we are using a form of x-rays and can do damage, as Dr. Grote has already indicated. It cannot be used at random and forget about it.

Dr. Grote: Dr. Chapin's discussion on the treatment of carbuncle—I have begun to think that this is malignant so I didn't enter into that as classed under the non-malignant diseases of the skin.

Harmlessness of Grenz ray—I don't think there is anything that comes out of an x-ray tube that is harmless and part of one question of Dr. Pfahler, the Grenz ray is an x-ray, a very low, supposedly produced between five and ten k.v. giving us a 2A dose as a maximum.

The equipment I have used has been an old timer. As near as I can tell, I am getting about 6 k.v. out of it. It is a Tesla transformer, one that I discarded years ago. It found its way to the junk room and I dug it up after Eller & Buckley's work to see what I could do, and although this hasn't been calibrated exactly, as near as we could figure out mathematically, I am getting about six thousand volts and about 1.6 A out of it.

Now, it is still x-ray. I don't think there is any argument about that at all, Dr. Pfahler, as I understand it. But we probably have some other unknown rays along with that, it being of such a long wave length. Pusey, about 1904, reported a lot of successful skin work in a book he published at that time. That was undoubtedly due to these longer wave lengths than we have been accustomed to using.

The point that I want to bring out is the diagnosis as early as possible of skin lesions so that we can prevent the non-malignant overlapping into the malignant field and preventing that sort of a development. Then we will not have any use for coagulation, etc.

The technique of doing that? It is done by interposing a filter, these filters mentioned in the paper, which cut out the short of the violet. These overlap those produced in the tissues. We do not get a fluorescence as mentioned and we are apt to get a very damaged skin—the very damage Dr. Pfahler mentioned, that we can damage the skin with ultra-violet regardless of what anybody says. I am satisfied of that although I haven't the proof with me. I think there is no question of the possibility of proving that satisfactorily.

Our osteopathic and chiropractic friends are creating that damage. We have seen it twice in the eyes: as near as I can find out that is the only treatment they have had, the only physio-therapy treatment, and the eye and ear men have sent them to me.

Dr. Pfahler: I don't quite get the technique yet.

Dr. Grote: The skin of the area is exposed (demonstrating on blackboard). If we have a quartz light burner and we project that through

an opening and interpose a filter we will cut out practically all of the short ultra-violet rays. The long ones will fall on the skin and those will produce fluorescence. Sunlight will produce fluorescence in the normal skin.

Dr. Pfahler: Does the fluorescence come out after you turn it off?

Dr. Grote: After you turn it off, then it becomes visible photographically. While it is on there, of course, you won't see it. Turn it off, and over here we have the camera, and immediately—within about two minutes' time—a photograph is taken of our skin. Simply turn this so as to get a direct ray and get a straight photograph. The photographer who took the second film took it at this angle because I was so busy I couldn't get at it to have the slide ready.

Dr. Pfahler: No other light?

Dr. Grote: I used my dark room for it.

Dr. Pfahler: How long was your exposure?

Dr. Grote: Five minutes.

Dr. Kaplan, Chicago: How long an exposure from the ultra-violet?

Dr. Grote: A minute and a half.

Dr. Kaplan: What distance?

Dr. Grote: About twenty inches.

Dr. Pfahler: But you can also see this fluorescence with the naked eye—is that right?

Dr. Grote: I have seen it but I don't think it is seen often.

Dr. Pfahler: You depend upon the photograph?

Dr. Grote: We depend upon photography. The early part of the paper mentioned that—ultra-violet irradiation plus photography.

Dr. Trostler, Chicago: Is it a long exposure?

Dr. Grote: I made only two minutes on that breast case I showed you. That was purely a thing that came into my mind. I have used it twice since on so-called x-ray dermatitis and got practically the same thing.

Dr. Williams: Was that breast case photograph made in the dark?

Dr. Grote: No, it was a composite, one on top of the other.

Dr. Pfahler: Which one?

Dr. Grote: The breast. One was made in the dark; another exposure made in the light and the slide made from both.

Dr. Flinn, Decatur: The tissue that fluoresces, is that early pathology, a pre-pathological condition?

Dr. Grote: There is no question but what there is a difference in the degree of fluorescence between normal tissue and abnormal tissue. Pigment absorbs it and so we don't get it.

Dr. Flinn: Have they advanced enough to differentiate fluorescence yet?

Dr. Grote: I have read about thirty in the bibliography and none are as well satisfied as I am that we are on the track of something. I think we are on the track of early diagnosis in some skin lesions.

A particular point about the myogenic changes

in tissue and particularly in the neuro-dermatitis cases, herpes, shingles, etc.

Dr. Pfahler: How long do you make your ultra-violet exposure through that before you make your photograph?

Dr. Grote: I made it on the nose case about three minutes; on the breast case about a minute and a half.

Dr. Pfahler: Then the photograph five minutes.

Dr. Grote: You will get no injury from the violet ray at twenty inches because you are cutting out the short, irritable violet ray.

As to differential diagnosis, it is a question of clinical conception of the difference of the fluorescence on a keratotic area. For instance, you get none there and plenty here on the hand (pointing).

By synovial lesions I mean cysts—those that come underneath or over underlying connective cells. That is why I mention skin anatomy coming from within out.

As to port wine stain, I still think my best results came from CO₂ snow and lastly gamma rays. I don't like to use those on port wine stains because I think we get an effect too deep. I don't think it is right in principle. CO₂ snow is pretty safe if you don't try to overdo it and take plenty of time and work from either without inward or within outward, depending on size. If I have a very large one, I work from without inward. If I have a small one, I do my freezing first within the center wait a while until that recovers and keep on working outward. I don't believe in radiation for port wine stains.

MOVEMENTS OF THE ALIMENTARY TRACT IN EXPERIMENTAL ANIMALS*

A. J. CARLSON, M. D.

University of Chicago,

CHICAGO

There is nothing essentially new in this film. It is our first attempt at motion picture photography of all the parts of the gut, and it is by no means the best that can be done. However, it does show, in addition to the normal movements, the excessive movement produced by vagus stimulation. We succeeded in producing an "hour-glass stomach" by vagus stimulation. In addition, we succeeded in producing spasm of the entire small intestine, also by vagus stimulation.

In the cat there is an unusual shortening of the length of the whole small bowel in defecation. It shortens to about one-third its normal length.

*Comments on a film shown before the Section on Medicine, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 8, 1928.

The instance on the film is not the best one we saw. Dr. Luckhardt and I worked over a great many animals in order to get the experimental condition as good as possible and frequently in the trial experiments we had better results than we see on the film.

Our intention was to secure a film for teaching purposes that will impress itself indelibly on the mind of the medical student, such as one secures through years of observation with the fluoroscope. You do not get this by the balloon method, or by studying the x-ray plate.

While we are waiting for the screen I might make this remark: That when you see this hour-glass stomach developed, in this case it is due to hyperstimulation of the vagus. I have stimulated the peripheral vagus under same conditions in the dog many times and have never seen it before or since. So it is necessary to consider not only the vagus stimulation but some peculiar condition of the peripheral mechanism and I am very anxious not to leave the idea with you that every case or any one case of hour-glass stomach represents vagus stimulation or overstimulation (so-called "vagatonia").

The animals are all under moderately light sodium barbital anesthetic. That paralyzes the gut much less than ether. The abdomen is open, the abdominal wall kept to the side and the viscera covered as much as possible with warm Ringer's solution.

Film: These rapid movements you see here of course, are the effects of respiration (the diaphragm). We are unable at present to eliminate that. The pylorus, duodenum and the stomach. The stomach is filled with food. The normal movements start here at the antrum, going over and stopping at the pylorus. These are about the strength that you would find in normal digestion, through the fluoroscope. The duodenum is relatively resting. This also gives an idea of the massage of the stomach by the diaphragm in respiration.

Just prior to this, we made a powerful stimulation of the vagus, you notice the stomach goes into spasm, the entire stomach contracts and turns on itself and for a considerable time after the stimulation you see these violent spasms and peristaltic waves rapidly sweeping over the entire stomach. You notice as a result of this stimulation there was no motility in the duodenum.

Here is another spasm induced by vagus stimulation. More normal movements. Feeble movement. Duodenum relatively quiescent. Here you can see some segmentation in the duodenum. Segmentation movements now have disappeared.

Another spasm of the stomach on vagus stimulation with the duodenum showing a few feeble peristaltic waves but a tremendous spasm of the entire stomach. After a little while we see more normal peristalsis.

A rather pronounced spasm of the antrum. Here is a peristaltic wave starting at the fundus and sweeping rapidly over the entire stomach. Another stimulation of the vagus, a spasm, again, of the antrum. It is very difficult to show the extreme spasm that the pylorus goes into on vagus stimulation because the pylorus is away up under the liver and it is very hard to expose it so that the film will show it.

Gastrospasms and peristaltic waves going toward the cap. All this extreme motivity resulting from one brief stimulation of the vagus and now you can see the development of the hour-glass stomach. The fundus is relatively quiescent. See the spasm holding here at the transverse band. After a while it will stay permanently. A result of one brief stimulation of the peripheral vagus. Here is the peristalsis starting away over in the fundus. There is one. You can follow it right over. Very, very seldom do we see antiperistalsis develop in the stomach as a result of vagus stimulation. The duodenum is quiescent. These are the small intestines,—quiescent, filled with food. As a matter of fact, the condition of anesthesia on the opening up of the abdomen leads to greater paralysis of the small intestine than of the stomach.

You can, however, see some feeble peristalsis in the duodenum. You see here a spasm of the entire small intestine on stimulation of peripheral vagus. If you direct your attention here you can see peristaltic waves in the duodenum. The stomach is moving vigorously as a result of the stimulation.

These are loops of the ileum here. This is what we call hyperperistalsis, starting away over in the fundus, going vigorously over to the pylorus. If you appreciate that the camera is focused a little sideways, it is not looking right

down; consequently you get the stomach larger than it actually is.

Local stimulation causing a spasm that does not travel anywhere under these conditions. Again, local stimulation causing spasm that stays, does not travel in any direction.

Now we show the spasm of the small intestine on vagus stimulation. See how contracted and hard they become and they stand up rigid. There you see very good peristalsis in the duodenum. Peristalsis in the duodenum. Peristalsis very good here. Segmentation. There is a brief antiperistalsis of the duodenum and then the normal.

There is an antiperistalsis in the duodenum. Antiperistalsis is quite a normal phenomenon in the duodenum.

While we are changing the film, I will be glad to answer any question on what you have seen.

DISCUSSION

Dr. Rosalie M. Ladova: Why did you not show the normal peristalsis rather than the excited one?

Dr. Carlson: I showed both.

Have you ever opened a patient or an animal under general anesthesia?

Dr. Ladova: No.

Dr. Carlson: Well, I want to ask you how much normal motility you see in the stomach and intestines when you open the abdomen under anesthesia. That is the great difficulty in this sort of work,—the general anesthesia and trauma of opening, the unavoidable exposure to air, usually causes paralysis. But part of the film shows the normal movement as you see it under the fluoroscope.

You can see this type of exaggerated peristalsis in cases of pylorus spasm or pylorus stenosis, both in adults and infants. They are both pathological in a way but this is the kind of pathology that the Roentgenologist sees.

Dr. Spiesman, Chicago: What was used to stimulate the vagus?

Dr. Carlson: That was very simple. Section of the vagus and peripheral end was stimulated by a moderately strong current of electricity.

This film shows the movement of the alimentary tract of the dog, the cat and the rabbit. First is the rabbit. The cecum and the large bowel. Unfortunately it was taken slowly so that the breathing movement of the diaphragm is exaggerated in speed, not in extent. You can see rapid segmentation of the small intestines here.

That shows very well the haustral churnings of the large bowel at this point; also the powerful peristalsis of the colon in the rabbit. Peristalsis of the small intestine. We get better movements of the small intestines in the rabbit than in the dog. That is why it was selected. Also better move-

ments of the large intestine because the rabbit has a sacculated colon like man. Haustral segmentations again.

The diaphragm does not shake the stomach so very much here. The haustral churnings are obviously segmental. That is to say, they are the type of segmentation movements seen in the small intestine.

This happened to be a pregnant rabbit and the movements of the uterus are seen here.

There is segmentation movement in the cecum, very good haustral churnings in the large bowel and segmentation in the small intestine.

This is a loop of the large bowel. You see the haustral churnings here. Peristalsis and segmentation everywhere in the small intestine. There is the duodenum in the rabbit showing very good peristalsis and segmentation this side of the large bowel.

We are ending up by trying to show the behavior of the large bowel in the cat. This is the small intestine showing some segmentation,—peristalsis—but the main point in this animal was the large bowel. Segmentation and peristalsis. This is the large bowel. Did you notice this downward curve? That is a small effort at defecation.

Here is the bowel, the rectum is down here. Pay no attention to the peristalsis of the intestine but watch the large bowel. Pay no attention to the diaphragm, either. There is some mass contraction. See how the large bowel slides down. An antiperistalsis going a little distance. A peristalsis going a little distance down, very slowly in the large bowel. Another antiperistalsis.

The large bowel becomes virtually a straight line along the axis of the animal in defecation. Now it is returning.

Are there any questions on this latter part?

Dr. Spiesman, Chicago: How long after the addition of food was the colonic movement noted?

Dr. Carlson: We had not starved the animal. There was residue in the colon.

Dr. Spiesman: Were you noticing colonic movements during the filming of the picture as well as the small intestine movements?

Dr. Carlson: Yes. The colonic movements in a cat under light barbital are more persistent than the small intestines. The stomach and the large bowel resist the abnormal conditions necessary for the filming much better than the small intestine, particularly if the colon is well filled with a relatively fluid mass.

Dr. Kantz: Did I understand you to say you could not produce the shortening of the colon in the dog?

Dr. Carlson: You can but not so easily. The colon in the dog moves pretty much like in the cat. It shortens to one-third of its length when there is a real powerful defecation but it is more difficult to produce in the dog than in the cat, in our experience.

Dr. Andrae: How does the movement of the

stomach compare in vomiting with the normal contracted vagus stimulation?

Dr. Carlson: The movements of the stomach in vomiting have been studied with x-ray both in man and animals and this seems to be the consensus of views as to the ordinary procedure. It starts with hyperperistalsis of the antrum. Then the antrum clamps down like a solid core throughout and holds that way, apparently, with the fundus more or less relaxed and apparently the cardia relaxed and then a strong spasm of the diaphragm and the abdominal muscle push the stuff up.

In the child there is some evidence that the stomach takes a greater part in the actual expulsion. The notion that the whole stomach is in a state of antiperistalsis in vomiting is not true; at least not ordinarily, under the conditions when the whole process has been followed under the fluoroscope.

Dr. Spiesman, Chicago: In the past we have always understood that colonic movements or mass movements occurring only after a meal were produced by gastro-colic reflex, and from your pictures I seem to get the impression that these movements continue all through the digestion of food and hours afterwards.

Dr. Carlson: Yes.

Dr. Spiesman: What is your impression about that?

Dr. Carlson: Well, the idea of a gastro-colic reflex has come about, I think, not from any actual observation by means of the x-ray but from the common experience that when you have filled your stomach with food and there is some material in the large bowel, there is frequently a desire to defecate. That is all. But when you start actual search for the so-called gastro-colic reflex in the experimental animal, you do not find it.

Dr. V. S. Weinstein: You said that there was a spasm in the lower portion of the stomach in vomiting. How about the reverse in black vomit in peritonitis?

Dr. Carlson: The stuff that is then vomited has come into the stomach before the actual vomiting. You mean in the case of vomiting bile?

Dr. Weinstein: No, I mean actual vomiting of fecal material in peritonitis.

Dr. Carlson: Your assumption is that fecal material comes from the large bowel. In peritonitis you have intestinal stasis. Is that correct?

Dr. Weinstein: I presume so; I do not know.

Dr. Carlson: That is true, and that is one of the serious complications of peritonitis—food remaining for hours or days in the stomach and the small intestine, becoming fecal in character so that the vomiting of so-called fecal material in peritonitis does not prove that the stuff vomitus has ever been in the large bowel.

I am not saying that such material cannot come from the large bowel. It can under certain conditions but in most cases it is intestinal content—an antiperistalsis there will sweep it up into the stom-

ach. It is in the fundus before the actual vomiting act.

RECOGNIZING TONSIL INFECTION*

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Focal infection has been rightfully given an important place in diagnostic medicine, but there has been a great deal of loose thinking, from a diagnostic and prognostic standpoint, and unnecessary elimination of anatomical structures in the clinical side of this important subject. The failures are still too many, and this paper may serve the purpose of:

1. Re-iterating the importance of the tonsil as a cause of systemic disease.

2. Leading to a more accurate diagnosis of the type of tonsil being dealt with, and pathology present before removal, as is done with other diseased organs, and

3. Creating better co-operation between the internist and the oto-laryngologist in making a diagnosis and prognosis. The plea will not be to remove fewer tonsils, or disparage the past results of their removal, but rather to ask for a more intelligent appraisal of the indications before removal. No brief is held for those who believe that the removal of tonsils in an effort to prevent or relieve and cure systemic disease is overdone, on the contrary, evidence points to the fact that the subject has not yet begun to receive the attention that its importance warrants.

No harm is done if we remove a few tonsils without apparent benefit, if we are able to reduce the incident of those diseases which now cause 25 per cent of human mortality. On the other hand, it is a serious mistake to remove tonsils, assuring the patient of a certain and complete recovery unless the indications and prognosis have been evaluated cautiously, bearing in mind other foci in the body outside the tonsil, as well as the local condition in the throat. Over confidence as to the benefit to be derived in a constitutionally defective patient, must also be guarded against in giving the prognosis. A tonsillectomy is a surgical operation and, while almost a popular demand, the operation still is too

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often unnecessary, and the dangers due to the anesthetic, the post-operative sepsis, embolism, hemorrhage and the morbidity from lung abscess, all indicate that the operation is not to be lightly undertaking, and should only be performed when the indications are clear, the diagnosis has been properly made, and the patient will receive the benefit anticipated. When the proper indications are not present, or are not properly interpreted the result is not satisfactory and may even prove disastrous. In many cases the operation is urgently demanded, and must be performed without delay, while in others it is a matter of election both as to the operation or time of operation. The criterion is well expressed by Professor Canfield¹—"The operation of tonsillectomy is indicated when the condition on account of which the operation is being considered may logically be the result of focal infection, and when there is a reasonable chance of material improvement." The proper treatment of the particular case must be based upon an accurate diagnosis of disease in the tonsil, and to decide what treatment is indicated requires judgment and experience. The decision as to the presence of a proper indication for a tonsillectomy is not so simply reached as many assume. The throat specialist should not be expected to assume greater responsibility than he is competent to do and the conclusion as to the source of a focal infection, can be revealed only after an exhaustive examination of the case, which can be done more efficiently by the internist than by the throat specialist. Where the question is entirely a local one, with recurring attacks of acute tonsillitis, the presence of local findings indicating a type of chronic tonsillitis which constitutes a real menace, the throat specialist is perhaps best able to pass on the condition. That pathological changes are present in all adult tonsils is readily admitted, but this does not mean that all adult tonsils should be removed. Where the indication for tonsillectomy is the presence of a supposed systemic infection, and where the local indications may not exist which constitute in themselves an indication for tonsillectomy, the decision should be reached only after consultation with the internist. Too often physicians fail to remove or advise the removal of tonsils that are causing remote symptoms because of unfamiliarity with the tonsillar pathol-

ogy. The disappointments in the results of tonsillectomies are still too frequent, both to the patient and the physician, to allow us to feel that the entire subject of tonsillar infection and tonsillar operation is a closed book and needs no further discussion or elucidation. The patients suffer a lot, live long and talk considerably.

Bacteriological Diagnosis: There is a question whether any data of diagnostic value can be obtained by culture from tonsils or tonsillar crypts. In a series of cultures taken from the throats of school children, Eves and Watson² show that the home of the streptococcus hemolyticus is in the crypts of the tonsil, that it has a benign influence on the tonsil itself but associated with many of the complications of all infectious diseases. In none of the throats did they find any microscopic evidence which would enable them to determine the presence or absence of any one class of organism. The examination of the culture from the surface or crypts is of no value in determining whether tonsils should be removed or allowed to remain and the streptococcus hemolyticus is found in tonsils for which there is no clinical evidence that they are a menace. In a large series of excised, chronically diseased tonsils Kilduff³ and Hersohn showed that the organisms most frequently found were staphylococcus aureus 33 per cent, micrococcus catarrhalis 34 per cent, pneumococcus 54 per cent, and streptococcus only in 6.4 per cent. It is only in doubtful cases that a culture from deep crypts showing a predominance of some form of streptococcus, pneumococcus, and so forth should be considered valid evidence for or against removal. In the climate such as that of Illinois, practically all adults and all children present definite evidence of tonsillar disease associated with the presence of pathogenic organisms, especially in colder weather, so that the finding of an organism or group of organisms on culture or smear, gives no indication that the systemic symptoms may be due to their presence. It is not the presence of the bacteria that causes dysfunction, so that the statement can be safely made and maintained, that bacteriologically the indications for removal cannot be maintained with any degree of accuracy.

Clinico-pathological Diagnosis: Some evidence of chronic tonsillitis can be discovered in

most adults and very often the chief indication for removal of the tonsil may not be the local infection but some form of systemic infection. Focal infection symptoms due to the tonsil may be present where there is no marked evidence of tonsil disease. It is in these cases where the decision as to removal must be made by the internist and not by the throat man. However, the clinical appearance of the tonsil may help greatly in the formation of a decision or throw the balance of evidence for or against the proper prognosis and time of operation. To determine the true pathology present it is necessary to use a procedure somewhat more thorough than a mere look into the throat and more mistakes are made by the practitioner by not looking than by not knowing. This is especially true of the flat sessile tonsil located behind the pillars and unseen if the only instrument used is a tongue blade. It is necessary to know the size, shape and consistency of the tonsil; also the presence of debris, pus or abscess formation in the crypts. For this purpose the blunt T-shaped Hess tonsil expressor is ideal and should be used on every case. Enough pressure must be used to dislodge the tonsil from its fossa or to move the tonsil and attached musculature into a position where it may be compressed against the lateral or posterolateral wall of the pharynx. Enough pressure is used to engage the tonsil against the T of the expressor; simply pulling the pillar aside accomplishes nothing. Bands of inflammation on the anterior pillar no matter how large or of what color usually means trouble in the tonsil. If the band is red, narrow, with an angry purplish appearance and a sharp edge, the organism most likely to be found is the streptococcus, and if the patient has rheumatism, neuritis or other streptococcus toxic symptoms, removal will very likely cure the case. If the band of inflammation is wide, diffuse, and bright red, it is probably staphylococcus and if the focal symptoms point to this type of infection a tonsillectomy will cure the patient, but if this type of pillar is present with focal symptoms, indicating streptococcus, or mixed streptostaphylococcus, the result will likely be disappointing as far as the cure of the focal symptoms are concerned. The types of tonsils ordinarily encountered can be classified into the following groups by their appearance.

A Simple Hyperplastic, Without Symptoms:
This type is found in the normal healthy child in our climate and must be considered as a part of the general protective lymphatic ring or chain. This lymphoid ring is not an extraordinarily active focus of infection, but on the other hand has actual use as a preventive of infection into the cervical lymphatics, a sufficient amount of healthy lymphoid tissue being necessary. Frequently tonsils of this class are removed, only to have the other portions of the lymphoid ring hypertrophy to protect the individual. If this does not occur, the local resistance is lowered and we find often that there is increased susceptibility to nose and throat infections. This is especially true if the tonsils and adenoids are removed at the formative period from three to six years. Canfield⁴ has given a very fine description of this lymphoid ring and the dangers of ill-timed removal of tonsils. He says:

I have come to consider that there is a certain type of child, for instance, in which an altogether successful result may not be expected. Especially if the child is operated upon during the first three or four years of its age. I described this child as a spindle-legged, thin bodied, freckle-faced blond, with thin skin and large veins marked in the temporal regions. This type of child will probably build up after operation, masses of lymphoid tissue on the posterior pharyngeal wall and even in the tonsillar fossae; will develop an edema of the nasal mucous membrane, will show an increased susceptibility to colds and upper respiratory infections, and will often develop a cough which persists for several years without demonstrable organic cause. I have seen this happen so often that I now look upon the removal of the adenoids and tonsils from such a child with some concern and in each individual case attempt to set down side by side—on the one hand, the clinical importance of the focal infection, and the disease which seems to result from it, and on the other hand the unfortunate susceptibility to mild respiratory infections that may result from the operation. In other words, I attempt to evaluate the adenoids and tonsils in respect to their importance as a focus of infection and as a useful element in the ductless gland system.

The lymphoid type of tonsil may persist into adult life and may need treatment on account of their presence. It is this tonsil that can be reduced very successfully by x-ray treatment.

B—Chronic Hyperplastic Tonsillitis

These patients may be entirely without symptoms of acute tonsillitis or sore throat, and yet,

the tonsillar infection may lead to sudden exacerbations of symptoms after years of quiescence just as an appendiceal infection will be dormant for years and then flare up. There may be no symptoms from this type or we may have symptoms due to obstructed breathing, cervical glands, intestinal disturbances, periodic pyelitis co-incident with head colds, and bone and joint disease. This type of tonsil is commonly found in childhood, but later in life may cause focal infections. One of the most common is general asthenia with loss of energy and initiative, but without demonstrable organic disease. The patient tires easily, has anorexia and may have gastric symptoms. This tonsil starts as a simple hypertrophy but the mucous membrane becomes destroyed by repeated attacks of acute infection and the tonsil then becomes a reservoir of infected material which awaits a lowered local or general resistance to enter the lymphatic. The tonsil has cystic crypts, sclerotic vessels, scar tissue, hyperkeratosis, hyaline degeneration, bacterial colonies in crypts, and fibrosis of the capsule. There are no capsular adhesions and the tonsil works up its own immunity usually. Cheesy masses of exudate can be expressed from the crypts. The more common diseases of focal origin such as rheumatism, neuritis, etc., are seldom found in this type. Cervical glands are usually found present, and peribronchial glands are commonly found.

C—Chronic Hypoplastic Tonsillitis

This type is far the most common in adults, but may be found in children. The start as type B but due to successive attacks of acute infection the lymphoid tissue is destroyed, leaving only a small amount with diseased crypts, scar tissue and a marked fibrosis of the capsule. The pillars are usually injected. These tonsils are seed plots for the "weeds" of bacteria when the soil is depleted by overwork, exposure, etc. Painful throat is frequently experienced due to the capsular adhesions formed and ear symptoms are common. Cervical glands are seldom found in this type and acute attacks of tonsillitis are rare. It is this type that offers the best hope of results.

D—Rheumatic Tonsil

MacLachlan and Richey⁵ have described a distinct type of tonsil found in rheumatic fever, being led to the study by the association of rheu-

matic fever and tonsillitis. They found that there is no characteristic lesion in the tonsillar tissue proper, but that at the time of tonsillectomy an unusual degree of peritonsillar inflammation or fibrosis was present. The tonsils are so adherent that lines of cleavage are obliterated and the pericapsular tissues are extremely vascular. After a time this is replaced by fibrosis which is widely distributed instead of in localized deposits as in quinsy beds, nor is it as thick and dense as the scar tissue found in recurrent peritonsillar abscesses. The tonsil is firmly fixed in the fossa and cannot be displaced from behind the pillar. The blood vessels in these tonsils are large and tortuous and there is present a marked arteriosclerosis in the capillaries. Fibrosis of the tonsil may not occur with pericapsular fibrosis and the tonsil may be large or small.

E—Tuberculosis of Tonsil

From two to five per cent of all tonsils removed show tuberculosis and this has led to the belief that tuberculosis makes its entrance through the tonsil, and lymphoid tissue of the throat. Clinically, children can be placed by a careful study of their throat history in one of the following three classes.⁴

1. Those with microscopic evidence of tuberculosis in the tonsil but none in the glands. After repeated attacks of tonsillitis a persistent sore throat with some pain on swallowing remains, but in which all evidence of involvement of the glands disappears. This occurs normally in children who remain underweight, have slight afternoon temperature and weariness after exertion.

2. Those with microscopic evidence of tuberculosis in the glands but none in the tonsils. After repeated attacks of tonsillitis the tonsil recovers but the infiltration of the glands persists. Even a moderate enlargement is sufficient. A cure follows removal. Some degree of enlargement in the cervical glands is present in most children. The fact that these glands subside after tonsillectomy indicates that the infection is usually a simple inflammation and not tuberculosis. Tuberculosis is probably a late secondary infection and the enlarged cervical glands are due to a septic absorption with the tuberculosis as a secondary infection.

3. Those with microscopic evidence of tuberculosis in both tonsils and glands. Between at-

tacks there is complete recovery in throat and glands, but there are no other findings of tuberculosis elsewhere in the body, yet the history points strongly to tuberculosis. Tonsils in tuberculosis children should be removed, even though they appear normal and especially in children living in a home with open tuberculosis.

General Considerations: Failure of tonsil operations cannot always be charged to faulty diagnosis of the tonsil itself, but may be due to untrained operators, incomplete removal, disregard for other elements in the lymphoid ring, post-operative distortion, and untoward complications, disregards of questions of diet and hygiene. The time of operation is of very great importance and injudiciously timed interference may lead to keen disappointment on the part of patient and physician. Careful study, with proper post-operative supervision, will often obviate annoying explanations to the patient and friends. The keynote of success in tonsil diagnosis will be first of all, to make a careful study to prove as nearly as possible that the disease and symptoms can be caused by the tonsillar condition, barring out other sources of the morbidity in other parts of the body, and bearing in mind that a failure in the cure may be due to haste, laziness or carelessness. More mistakes are made by not looking than by not knowing and a word of warning—a physician should not try to express an opinion on a throat with an apparently bad result until he has made a very exhaustive study of that particular case.

CONCLUSIONS

1. An accurate diagnosis of tonsillar disease must be made before operation, to obviate needless operations and determine the benefit the patient may expect to receive.

2. Except in purely local tonsillar disease the diagnosis and interpretation of indications for operation cannot be made solely by the nose and throat man, but must be done by the internist. To the internist, pediatricist, or the family physician should fall the responsibility of coordinating the facts, dictating the operations and outlining the future treatment.

3. As many tonsils are needlessly removed, subjecting the patient to the risks of operation and without benefit as are left in by inaccurate diagnosis of the tonsillar disease.

4. It is not always possible to determine the relation between systemic disease and a tonsillar condition, but careful examination of the tonsil, and a complete history of the patient's symptoms may be big aids in establishing the etiology and indicating the treatment.

5. In children the appearance of the tonsil should not be the determining factor, but the history of infections and symptoms must determine when tonsils should be removed.

6. Closer co-operation should exist between the nose and throat specialist and the internist in studying tonsillar disease, and the benefits to be derived by tonsillectomy.

7. Removal of tonsils will not repair the damage done in other organs, and complete cure of the symptoms based on a tonsillar infection cannot be prognosticated, neither can the bad results and incomplete cures be used as an argument against tonsillectomy, an operation which will prevent further damage, but cannot repair that already done.

8. Removal of the tonsil does not cure the patient. He should return to the physician for reconstructive treatment, further observation and continued advice, constantly bearing in mind that there may be further foci present that prevent complete recovery.

9. Look carefully, think hard, be cautious in prognosis, and don't promise too much unless you are sure of your diagnosis.

DISCUSSION

Dr. D. C. Sutton, Chicago: Mr. Chairman and gentlemen: I am very pleased to have Dr. Meixner call a note of conservatism in regard to the removal of the tonsils and placing the effects of that removal in generalized disease.

A number of years ago Alvarez published in the *Journal A. M. A.* careful records of a large group of cases who entered his office as previously having had a tonsillectomy. He divided them into groups as to the reason why the tonsils were taken out. The first group consisted of those who had frequent attacks of tonsillitis. Their own opinion of the results was practically a hundred per cent good.

When the tonsils were removed as possible foci of infection in arthritis and various other lesions presumed to be of focal origin, the results were much less spectacular. As I remember the figure, it was between sixty and seventy-five per cent. When the tonsils were removed because the physician or the nose or throat man thought they looked like they should be removed, because they were definitely diseased, the results were much poorer,—around

twenty-five per cent, satisfaction as far as the patient was concerned.

Finally, he had a small group in which the tonsils were removed as a matter of general principle. Those were completely dissatisfied, a hundred per cent.

There is no question that a certain amount of general infection, especially arthritis and neuritis, does follow from foci of infection in the tonsils, teeth, possibly gall bladder, etc., and if so the tonsil should be removed as a possible focus of infection. But, as Dr. Meixner has called attention, by careful observation we may be able to judge more definitely as to whether the tonsil has something to do with the infection and, even with that, must be conservative as far as believing that that will be the sole cause or result in a cure.

Another observation that I'd like to call your attention to that was given to me a few years ago by a pediatrician on the North Shore of Chicago where the patients are able to have tonsillectomy in practically all their children. He made the remark that a rheumatic heart disease of childhood should entirely disappear in such districts because a hundred per cent. of all those children had their tonsils removed. He caused me to watch for possible heart complications occurring without tonsils.

Rheumatic endocarditis can occur with the tonsils out, so that even in children the removal of tonsils as a possible preventive of future diseases certainly is not warranted and tonsils should be removed on indications within the tonsil and not so much on general conditions.

Thank you.

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Dr. Meixner: I just want to reiterate one point. That is, don't carelessly send a patient to a nose and throat man when you suspect systemic infection and expect the nose and throat man to take the responsibility to say whether the tonsil should be out or whether they should not be out. And secondly, after you have had the tonsils removed in a case of systemic infection, don't tell the patient to go home and not report back to you or neglect to tell them to come back. The patient needs as much, perhaps more, treatment after the tonsillectomy in follow-up work and watching for other foci of infection as before.

Many times the patient will return to the eye, ear, nose and throat man once or twice and then the general practitioner loses interest and the

patient wanders off to another clinic or physician for further treatment.

Take care of your patient after the tonsillectomy as well as you did before the tonsillectomy and results will be much better.

FACIAL NERVE DANGER POINTS IN MASTOID SURGERY*

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Of all the disasters following mastoid surgery there is only one greater than facial paralysis and that is death itself. The thought of this calamity lies back in the mind of every operator in every operation as a possible sequel. It is impossible to determine the percentage of cases of mastoid operation in which facial paralysis does occur as one of the sequelae, but the estimate has been made that it occurs in between two and three per cent. of the cases. While I do not intend to enter into a general discussion of the anatomy of the nerve I do want to call attention to three points in the course of this nerve through the temporal bone which bear a relation to mastoid surgery.

The first point is that the external wall of the Fallopian aqueduct where it crosses the inner wall of the tympanic cavity is very thin. In some specimens the wall has dehiscences and in others the outer wall is almost entirely absent. To those who practice curettment of the inner tympanic wall in their tympano-mastoid operations the danger in this locality is one of real importance. My own impression is that the good to be accomplished by curettment in the ordinary radical mastoid operation does not compensate for all the danger to the function of hearing or to the integrity of the facial nerve.

The second point I wish to make is regarding the relation of the nerve to the posterior attachment of the drum membrane. Following the downward curve adjacent to the horizontal semicircular canal the nerve follows a course directly downward. It swings neither forward nor backward, inward nor outward. Because of the slanting position of the membrane the upper part of the membrane lies more superficial (surgically) than the nerve while its lower part lies

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deeper than the nerve. Directly back of the middle of the posterior attachment of the membrane and on the same level, i. e., the same distance from the outer surface of the temporal bone, lies the facial canal. The distance from the annulus to the canal at this point varies from two to three millimeters. Hence in removal of the posterior wall of the canal in radical mastoids the annulus tympanicus can be chiseled away above its middle, but below its middle it must be let alone.

The third point is that the nerve in its downward course through the temporal bone frequently passes through cancellous bone, i. e., the mastoid cells extend entirely around the nerve, and the deep perpendicular cells may extend several millimeters deeper than the nerve. In attempting to exenterate the deep perpendicular cells and those more superficial which extend around the nerve great care must be exercised, but when these cells are suppurating, or are broken down, or when the lateral sinus is located superficially and is placed well forward even greater care becomes imperative.

We frequently hear of abnormalities in the course of the nerve in its passage through the temporal bone, but in the performance of several hundred mastoid operations on the cadaver I have never found any considerable variation in the position of the nerve although there is much variation in the structure of the bone through which the nerve passes.

DISCUSSIONS

Dr. A. A. Hayden, Chicago: Gray's Anatomy is my authority for the statement that the seventh nerve is the most frequent of all the cranial nerves for the site of paralysis to occur. I think that the statement Dr. Andrews made in his opening remarks, that death itself is the only greater catastrophe that can follow operation than paralysis of the nerve, is true. It is at least too true that subsequent procedure for the removal of this very disfiguring effect cannot be relied upon to affect a cure. I once thought that paralyzes were to be looked for only as a complication of radical operation in cases where radical procedures had been done. But I saw a case in my own office last year where the nerve had been cut in a simple mastoid operation. I talked with the man who operated on that case this morning. The difficulty seemed to be that the aditus antrum was situated very deeply in a sclerotic mastoid where it was difficult to find. Every effort should be made to avoid such occurrences. Dr. Andrews says the course of that nerve is fairly constant, but I call

your attention to the fact that he says that the nerve is sometimes not as well protected in some subjects as in others. In such subjects one stroke of a curet or one turn of the burr, if a burr is used, can sever the filaments of its placement. One of the best means of prevention of injury to the nerve should be the delay of all bone work that has to be done in the vicinity of the nerve until the last of the operation if possible, because at that time your patient will be almost awake and the unilateral twitching of the eye and face can be readily noticed by the anesthetist and reported. You will have the twitching of the eye reported to you frequently when the nerve is not being stimulated, but I think this will very seldom occur with unilateral twitching.

We must also remember that the nerve of Rissberg is also very frequently involved. One of the difficulties that these patients have in facial paralysis is that food lodges between the jaw and the cheek. Watering of the eye is frequent. I saw one case about four days after operation which appeared to be due to packing or transitory edema of the nerve sheath.

Dr. A. A. Hayden, Chicago: About the nerve being very superficial in infants. A man appeared before the Board of Examiners in Washington and a question was asked him about the superficial location of the nerve in infants and he didn't know anything about it. He was turned down. I think we are apt to forget that the nerve does come out very superficially, and that skin incision if carried below the tip is apt to cut it.

THE TRAINING OF AN EYE, EAR, NOSE AND THROAT SPECIALIST*

LEO STEINER, M. D.

Managing Officer, Illinois Eye & Ear Infirmary

CHICAGO

The training of the specialist has occupied the attention of educators for many years. Various opinions have been expressed advocating this and that idea, largely based upon the writer's personal viewpoint and experience.

Post-graduate schools have been organized throughout the country with more or less success. Some of these schools have attempted to give intensive courses on these subjects covering a period of several weeks or more and issuing at the end of that time a certificate of more or less value. Individuals taking these courses which must necessarily be almost entirely didac-

*Read before the Section on Eye, Ear, Nose and Throat, Seventy-eighth Annual Meeting of the Illinois State Medical Society, Chicago, May 9, 1923.

tic, have returned to their homes with the idea that they were now justified in appealing to the public as specialists. As time went on they soon found out that they knew very little more than they could have acquired by reading a very small text-book on these subjects. At the present time there is a tendency to go to the other extreme; that of giving very lengthy courses on every detail in these specialties. Some of these courses run over a period of several years. That these very long courses are more commendable than the very short intensive courses is self-evident. That there is also a need of these short courses cannot be questioned, but not for the purpose of making of the general practitioner a specialist. Such courses have a definite place and can be made of much value to the general practitioner, that is, for the purpose of aiding him in recognizing the serious diseases and treating the more common conditions more intelligently. That a happy medium may be reached in the future is to be expected. That individuals will be able to receive just the kind of training they wish is sure to come, the difficulties may be many, but that the opportunities will be present is quite certain. Those seeking higher medical knowledge and research opportunities are sure to find what they want if they want it bad enough.

The observations, suggestions and what opinions I may express are based upon a personal experience in one of the largest and oldest institutions devoted to this work in this country. Having occupied the position of managing officer of the Illinois Eye and Ear Infirmary for the past seven years and having had the privilege of attending the regular monthly staff conferences and meetings of the executive board where matters of this nature are frequently discussed, I believe I am in a position to have an opinion. That this opinion will not meet with the approval of all those interested in this subject is to be expected. However, as a result of these many and varied contacts I am sure I am expressing only what appears to be the concensus of opinion of the interested men and women I have had the good fortune to meet. Our ex-internes are distributed throughout the country; the greater majority are located in the central and western states, where they occupy enviable positions in their individual communities. Now a word or two about our own institution which is limited

to 135 beds with an out-clinic department that takes care of about 100,000 patients per year. We have six senior eye surgeons and six senior ear, nose and throat surgeons, about thirty-six assistants, with eight internes. Our nursing staff, although somewhat limited, is composed of intelligent, well trained graduates. The fact that the positions of interne are always keenly sought for is in itself sufficient evidence that what we have to offer must be of a very excellent character.

With this as a background we may proceed to express our experience in the past, what we are doing at the present time and what we believe would make an ideal state to attain.

It would appear from the records at our disposal and from the information obtained from previous internes and the older men holding positions on the staff, that a more ambitious, hard-working type of young man occupied the position of interne in the past than is now obtainable. These statements are naturally open to question and will probably require some modification. Personally, I cannot agree that human nature has changed very much in the last twenty-five or thirty years. I am inclined to think that ambition and perseverance are still to be found in our young men, some manifesting it more than others, but on the whole we must concede that the young man of today is a far better trained physician than his brother who graduated twenty years ago.

In the past it was argued that a man should devote from five to ten years to the general practice of medicine before he seriously decided to take up any particular specialty. This was unquestionably good practice but it surely requires some revision today. The adoption of the fifth year as an interne in a general hospital required by our Class A schools will go far toward solving this problem. I believe such a young man is better material for specialistic training than one who has had five or six years of general practice as suggested in the past. There is much evidence to force one to the conclusion that a man in general practice for the suggested length of time has made such contacts and developed such tendencies—social, financial and scientific—that are not conducive to the mental attitude required for specialistic training today.

Regardless of these factors, which we do not

look upon with much favor today, we find that our internes of the past have given a very good account of themselves. It is, of course, true that in years gone by, training for the specialties was not so extensive, but even so, it was almost unobtainable in this country except in the so-called post-graduate schools with their four to eight week courses. As a result it was almost a necessity to invade the European clinics for information. From what I am able to gather from those visiting the European clinics with their intensive courses, I should judge that they were not a great improvement on those offered by our own post-graduate schools. Even in Europe it was necessary to associate one's self with a clinic for a long time in some capacity, regardless of how menial, to obtain a real training.

A word should be said for the system of training that was probably most efficient in the past, that of a young man associating himself with an older and experienced man as his assistant. This system in all probability was the most successful. I am not so sure but what it is still the best method of training today. To elaborate: A young man with such an association and in addition, the opportunity of working in the clinic under this supervision, must acquire a knowledge and training not obtainable by any other method with the possible exception of an internship in a large institution devoted to this work.

Thus may we sum up the past in the preceding paragraphs to which I am inclined to think we need not bow our heads in shame. As to the present day training, I am sure we have progressed very materially. The under-graduate Class A school with its fifth year as an internship in a general hospital must be conceded to be a vastly improved product over the graduate of twenty years ago, although much fault may be found with this newer product in many ways. There would seem to be hopes that he will eventually find his bearings and prove to be of much value to the practice of medicine. His education has probably been over-stressed in the direction of a marked dependency in laboratory reports and in the use of mechanical devices for the recognition of disease. This training has naturally been at the expense of the development of the finer clinical side of the methods of diagnosis, namely, the use of the senses of observa-

tion and judgment. We can say very definitely from our own experience, that a young man who has just completed his fifth year in a general hospital makes a very superior interne to the one who has been in general practice for five years or more. Our experience has disclosed that a young man so trained displays a keener appreciation of the refinements necessary for the making of a specialist in this class of work. He is fresh from the lecture room, his mind is open and pliable, his clinical and hospital work has been supervised by men of experience and ability. His knowledge of physics, chemistry, physiology and pathology are still fresh in his mind and he can apply the basic principles underlying these subjects to the tissues of the organs which he will now have to deal with. His theoretical and clinical knowledge of general medicine, surgery and neurology and their probable relation to these organs of special sense are likewise fresh in his mind, quite possibly hazy—but he is ready for further development.

An internship in the Illinois Eye and Ear Infirmary covers a period of sixteen months, four months of which are devoted to the laboratory, general medicine, etc. This is followed by six months service in the eye department and six months of ear, nose and throat work. These services cover every phase of the practical work, namely: history taking, external examination, ophthalmoscopy, retinoscopy, refraction, operative surgery hospitalization, etc., In the ear, nose and throat department: medical and surgical treatment including that on mastoids tonsils, sinus work, submucous and other operations. No regular lectures are given. During the first four months the new interne associates with the older internes who help him in acquiring the fundamentals. He is always under the supervision of one more experienced than himself and can consult with the chief when matters not well understood arise. Lectures are given occasionally when requested by the internes. Although this may not appear to be an ideal outline for the training of a specialist, it has proven to be a very valuable and practical course in our specialties. These young men are occupied during the entire day with practical work and employ their evenings in reading. Unfortunately this must be limited to the number of internes the institution can accommodate. A more perfect training

would be a regular course of lectures on the various subjects, namely, anatomy, physiology, pathology, etc., in addition to the practical work. Such opportunities are afforded by other institutions of this character throughout the country but this is still inadequate to take care of the many who aspire to engage in these specialties.

The question then arises: What may we suggest to the many who are constantly looking for this class of training and what have we to offer such an applicant at this time? Our own institution is not a teaching one, although we do hope to put such a program into effect some day. Reputable physicians are always welcome to visit the different departments at the present time and make such observations that may interest them.

Thus we have left the two courses open to them; two extremes, that is the very short and intensive course and the very long course. Of the very short course we have made some mention, but I wonder if such a course might not be of some benefit to a young man, if in addition he associated himself with an older and experienced man as his assistant.

Relative to the very long courses I believe that they will develop into very useful forms of instruction in the future. Of the long courses offered in the eastern schools, I can say but little, having had very few contacts with such students, but one must admire the outline of their courses as described in their literature which seems to cover the work completely and in an attractive manner.

As to the future—I am inclined to think that a happy medium between these two extremes will eventually be offered. On one phase of the question, first, there must be some reasonable agreement, namely, shall the object of the training of a specialist be for the purpose of practicing medicine and surgery or shall he be trained to be a research worker. Personally, I am of the opinion that such training should be for the purpose of taking care of the sick. I am inclined to think that research work should be left to the research worker and his laboratory associates, but consultation with the practicing physician should be encouraged. Men and women trained to do genuine research work are inherently differently constituted mentally. They must possess elements of imagination and their viewpoint is naturally different. They may not at all times

appear practical to us, but their interpretation of such work is surely more dependable than that of the practicing physician.

There is a tendency in some parts of the country to permit students favoring these special subjects, to so pick their work during their undergraduate years as to favor these specialties at the expense of the more general training. This should be thoroughly discouraged and looked upon as a distinct step backward. No specialty is greater than the general practice of medicine. A specialist is and must be a physician primarily, and only secondarily one who has acquired special knowledge and experience in certain subjects. These specialties, in particular, ophthalmology, are too intimately associated with general medicine to permit substitution for even apparently minor subjects.

The most important function of the physician must still remain the art of healing the sick. To best accomplish this he or she must be well trained, firstly, in the fundamentals and secondly, in the practical application of this knowledge. The accumulation of a vast knowledge is worth nothing unless one can use it. The idea of filling a student's head with theory upon theory and the elaboration of the minutiae of these theories and like information will make of one but a store-room of words. The fundamental subjects, namely, physiology, physics of light, sound, etc., should not only be given in the form of lectures but should be supplemented with laboratory demonstrations. This work should cover at least three months. The next three months should be devoted to gross and microscopic anatomy pathology, bacteriology and like subjects. The remainder of the time which should cover a period of from six to twelve months, should be devoted to the practical side of the training. The young recent graduate of a Class A school could probably cover the first two periods in less than six months, but he surely could not hope to accomplish the practical side of such a course in less than one year.

This would probably be almost an ideal training for a young man and yet there seems to be something lacking to fulfill one's idea of a specialist. This idea may be old fashioned; probably due to the fact that the older men had to pay such a tremendous price in their training before they were accepted as specialists. Recog-

nition as such naturally takes time and hard work during which one acquires a clinical experience which after all, is of the greatest importance. Any one can make a diagnosis of syphilis with a positive report from the laboratory on his desk, but only a clinician of experience can make such a diagnosis with negative reports. One could elaborate on this idea to a very great length, but I am inclined to think that educators are beginning to realize that too much stress has been directed to the laboratories at the expense of clinical observation and they now seem to be swinging to a more happy medium.

Where could such a course be successfully given? Surely not in the post-graduate schools that grind them out in six or eight weeks! The fundamental subjects would almost have to be given in a university that not only has lecture rooms, but well equipped laboratories and teachers of experience. The practical work could be given in an institution having a large out-clinic department and a sufficient number of beds for hospitalization.

The more I discuss these matters with the serious minded young men and the older men of experience, the more am I inclined to the conclusion that clinical experience plus an alert mentality makes of a man a specialist, not an additional certificate.

DISCUSSION

Dr. E. K. Findlay: We are often asked "Where should I go for the best training in eye, ear, nose and throat?" The days of short and easy courses are gone. The medical units in cities and large communities are calling for thoroughly trained specialists. Dr. Steiner has mentioned the internship at the Eye and Ear Infirmary and the same conditions are true of an institution like Cook County Hospital, but unfortunately these conditions are open only to a few. The universities have endeavored to meet the condition, and have made great advances in teaching postgraduate work, but in this city we have an ideal condition. We have four large universities, well endowed and well equipped. We have an individual infirmary with a wealth of laboratory and clinical material. Now if these various places were united in a reciprocal way so that physicians could spend part time at the university for scientific training and part time as student assistants in the infirmary they would get excellent training in this branch of the specialty. The Infirmary has twelve services. These would afford opportunities to quite a number of student assistants. These assistants would be a great ad-

vantage to the infirmary. They would relieve an overworked staff and allow more time to be spent in studying individual cases. Opportunities are available in this city for clinical observation and scientific training that could not be surpassed in any medical center.

Dr. W. H. Wilder: Having been associated with the Eye and Ear Infirmary for something like twenty-five years I know that the valuable facilities that exist there have been in the past more or less neglected for clinical teaching and I think that they are neglected today, which is extremely unfortunate. One reason is that there has not been in connection with the institution such a far seeing man as Dr. Steiner, who has just read this splendid paper. I can anticipate that with the stimulus his paper ought to exert, these excellent facilities will be utilized. Dr. Findley has stated that the Infirmary should furnish opportunities for at least twelve to eighteen young student assistants to get practical work there; and if there were a concerted attempt made by members of the staff who are interested they might get cooperation of some of the universities so that the men who come to prepare themselves in these specialties could go to the laboratories of the universities to get certain fundamental work in the mornings and put in the afternoons in clinical work as student assistants. All this, provided you have the staff properly organized with men interested in teaching and using the material for demonstrating the various subjects. It seems to me there is a splendid opportunity at the Illinois Eye and Ear Infirmary for development of a Post Graduate School.

The American Board for Ophthalmic Examinations considers a man as prepared for their examination who has had an internship in a special hospital, plus one year additional training in private practice or a well organized clinic, and until he has such training he is not allowed to appear before the Board. The Infirmary could and should offer opportunities for special training that would meet such requirements.

Dr. Norval Pierce: I have met a number of ex-interns from the Illinois Eye and Ear Infirmary during the past few months, and without exception they are taking a very prominent part in medical life on the Pacific Coast. They occupy teaching positions in the various universities and hospitals. Some have done some very creditable research work. Fenton, for instance, has just been given the Casselberry prize from the American Laryngological Association, for original work on the anatomy of the sphenopalatine ganglion. These men from the Infirmary are taking a prominent part in the medical world in all parts of the country. I notice that Dr. Steiner said that lectures were given, when the interns requested it. That may have been a sly dig at the Staff. I cannot help saying that I believe that the Infirmary is not organized as it should be for teaching purposes. The vast material

that is there is largely wasted as far as scientific research is concerned and as far as it is utilized for teaching. I am sure that under the leadership of Dr. Steiner this can be remedied. It is my desire that the University of Illinois and the Infirmary become affiliated. I am quite sure that graduate work and training of specialists should be under the supervision of a university where the various departments of medicine can be correlated. I believe it is a mistake to regard research men as having a special endowment from the Deity. We are not all great thinkers, but we may all be workers in the field of research and investigation, amplifying, applying and extending and contributing to the work of science. I think every physician should be imbued with the feeling that, having received all the past has to give, he should contribute something in return to knowledge of the future. That is the research spirit. Without it medicine cannot advance. The Illinois Eye and Ear Infirmary, under proper guidance, should be eminently fitted to a place where scientific work could be accomplished. I do not believe it can reach the greatest possible good as regards its relation to the patients to the state or to the profession as long as it remains an isolated institution.

WHY A DEATH CERTIFICATE IS IMPORTANT

Certificates of death are important factors in the keeping of accurate vital statistics. The bureau of census of the Department of Commerce at Washington has arranged standard methods of reporting and the states that conform to its requirements are grouped into what is known as the United States registration area.

The bureau sets forth the following reasons why reporting of death certificates is important, quoted in Hygeia by Dr. Thurman B. Rice:

1. Certificates of death or certified copies of them are constantly required in courts and elsewhere to establish necessary facts.
2. Pensions or life insurance may depend on proper evidence of the fact and cause of death.
3. Titles and rights to inheritance may be jeopardized by the failure of records.
4. Deaths should be registered that public health agencies may know the causes of death and act promptly to prevent epidemics.
5. Deaths should be registered promptly that the success or failure of all measures attempted in the prevention of disease may be accurately determined.
6. Deaths should be registered that individual cities and localities may learn their health conditions by comparison with conditions in other communities and determine thereby the wise course of public health activity.
7. Deaths should be recorded that home-seekers and immigrants may be guided in the selection of safe and healthful places to live.

THE JUNK MAIL NUISANCE

The mail we receive each day, especially in the first delivery, is becoming a nuisance. Quantities of letters sealed and unsealed; blotters, calendars, pamphlets, booklets, books, circulars, samples of almost everything in boxes, containers and otherwise, and hundreds of post cards written, typed, and printed, make up in general a mass of waste paper and refuse. If one takes the time to carefully open all of this and glance through it—reading it is naturally quite impossible and entirely out of the question—much valuable energy and time is wasted.

By simply glancing at this usual bundle of mail we can of course, tell at once what to open and what we need not bother with. The really important communications are easily sorted out and the remainder is thrown away without further consideration. In the majority of instances, this form of advertising, etc., accomplishes nothing. It is really a problem to dispose of the contents of one's waste basket.

As we have pointed out many times, and this applies particularly to business concerns dealing in products, which are intended for the physician, if these were brought to his attention through the advertising pages of the medical journals in the proper ethical, professional and scientific way, his interest would be more readily aroused and maintained. The doctor's medical journal is always kept on hand for at least some time and is certainly more often looked over than is the letter or advertising matter which he gets in the mail.
—*Ed. Am. Med.*

NEEDED HER SLEEP

Mistress: "Mary, has the druggist sent that sleeping powder yet?"

Maid: "No, ma'am."

"Then ring him up and ask him if he expects me to keep awake all night waiting for it."

GHOSTS

Rastus: "Ah done hear yo' stayed in de haunted house last night. What happened?"

Sambo: "Bout two o'clock ah woke up an' a ghost came frew de side wall es' if de wall wasn't dere."

Rastus: "An' what did yo' do?"

Sambo: "Boy, ah went frew de other side wall de same way."

Society Proceedings

ADAMS COUNTY

The regular monthly meeting of the Society was called to order by the President at 8:50 P. M., May 13, 1929, with twenty-six present.

Dr. Warren Pearce gave a short talk concerning the recent meeting of the American College of Physicians which he attended in Boston. This was followed by a Symposium on Gastric Ulcer. The following participated, with subject of paper:

1. History and Incidence—C. A. Wells, M. D.
2. Pathologic Anatomy—Frank Cohen, M. D.

3. Pathogenesis—T. B. Knox, M. D.
 4. Symptomatology—John F. Ross, M. D.
 5. Sequelae and Complications—John A. Koch, M. D.
 6. Diagnosis—Harold Swanberg, M. D.
 7. Medical Treatment—Ralph McReynolds, M. D.
 8. Surgical Treatment—A. H. Bitter, M. D.
 9. Surgical Treatment of Crisis—H. J. Jurgens, M. D.
 10. Technique of Operations—J. E. Miller, M. D.
- Discussion on the symposium was lead by Dr. O. F. Shulian who was followed by Drs. Nickerson, Williams, Beirne, and Pearce.

Dr. Nickerson submitted the following resolutions which were adopted without a dissenting vote:

Resolved, That the Adams County Medical Society in regular monthly session, fully approve the action of the Chicago Medical Society in expelling Dr. Louis E. Schmidt from the Chicago Medical Society for unethical conduct,

Further Resolved, That our Counselor and our Delegate to the Illinois State Medical Society are hereby instructed to support the Chicago Medical Society in any action that may be brought before their respective bodies.

Dr. Shulian made a motion expressing appreciation to the Secretary for the articles that had appeared in the local press relative to the Schmidt controversy with the Chicago Medical Society. This was seconded and carried.

The meeting adjourned at 12:05 A. M.

HAROLD SWANBERG, M. D., Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Joint Meeting with Chicago Society of Industrial Medicine & Surgery, May 1, 1929

Moving Picture—The Relation of Absorbable Sutures to Wound Healing.....Courtesy Davis & Geck Factors in the Determination of End Results and Permanent Disability.

.....Henry H. Kessler, Medical Director,
State of New Jersey Rehabilitation Commission
Discussion—Ralph M. Carter, Green Bay, Wis.

Regular Meeting, May 8, 1929

Moving Pictures and Travelogue—Chicago Milwaukee, St. Paul & Pacific Railway System.....
.....Mr. L. V. Hitzfeld, Asst. Passenger Agent
A Brief Historical Sketch of the First Medical Institution West of Cleveland—Illustrated.....
.....H. H. Martin, La Porte, Ind.
New Features in Medical Economics..G. Henry Mundt
Discussion—Michael Davis, Director Medical Service,
Julius Rosenwald Fund.

Joint Meeting of the Illinois Division of the Society for Experimental Biology and Medicine and the Chicago Medical Society, May 15, 1929

1. Self-Disinfecting Power of the Skin.....
.....Lloyd Arnold and Charlotte Singer

2. Experimental Hypochloremia.....
.....G. M. Curtis and G. N. Pacheco
3. On the Absorption of Histamine from the Intestine.
 I. The Influence of Various Chemical Agents Applied to the Mucosa.....
 L. F. Mammoser and T. E. Boyd
 II. The Effect of Parathyroidectomy
 R. W. Albi and T. E. Boyd
4. The Mechanism of Stimulation of Gastric Motility by Insulin Hypoglycemia.....
 ..J. P. Quigley (Introduced by Dr. A. J. Carlson)
5. The Influence of Acute and Chronic Jaundice on Gastric Secretion and Motility
 Katherine Still (Introduced by Dr. A. J. Carlson)
6. The Fractionation of the Proteins and Their Skin Reactions on Sensitized Individuals.....
 B. Z. Rappaport and Mr. A. C. Johnson (Introduced by Dr. Walker).
7. The Efficacy and Advantages of Calcium Gluconate as a Therapeutic Agent.....
 S. A. Szurek (Introduced by Dr. Luckhardt)
8. Simple and Efficient Method of Clinically Reinforcing Knee Jerk.....A. B. Luckhardt
9. The Cutaneous Maximus Reflex in Experimental HypothyroidismM. M. Kunde
10. Changes in the Structure and the Lipin Content of the Central Nervous System in Ether Anesthesia ..Arthur Weil (Introduced by Dr. S. W. Ranson)
11. The Ultraviolet Transmission of the Various Layers of Human Skin.....A. Bachem
 By Title
12. The Basal Metabolic Rate of Thyro-parathyroidectomized Dogs.....M. M. Kunde

Marriages

HOMER WHEELER HUMISTON, Chicago, to Miss Katharine Frances Zener of Philadelphia, April 29.

Personals

This issue of the JOURNAL carries as a supplement the portrait of Dr. Frederick O. Fredrickson, president of the Illinois State Medical Society, 1929-1930.

Dr. Edward E. Moore, since 1913 health commissioner of Wilmette, has resigned.

Dr. Albert N. Mueller has been appointed city physician of Rock Island for the fifth term.

Dr. Bernard J. Lachner has been elected a member of the board of directors of the Rock Island Savings Bank.

Dr. Howard M. Jamieson, Harding, Mass., has been appointed pathologist to the Decatur and Macon County Hospital, Decatur.

Dr. Charles B. Voigt, Mattoon, was elected president of the District Medical Society of Central Illinois at its fifty-third annual meeting in Pana, April 30.

The Douglas Park branch of the Chicago Medical Society was addressed, May 21, by Dr. Ernest Meinicke, Hagen, Germany, on "A New Test for Syphilis."

Dr. Charles L. Mix, professor of medicine, Loyola University School of Medicine, who is retiring from active practice, has been elected to retired membership in the Chicago Medical Society.

The Vermilion County Medical Society was addressed, May 7, by Dr. Loyal E. Davis, associate professor of surgery at Northwestern University Medical School, Chicago, on "Trigeminal Neuralgia."

Drs. Joseph C. Ross and James H. Taylor, who were recently elected aldermen of Chicago from the northwest and west sides, were guests of honor at an "athletic night" given by the Physicians' Fellowship Club, May 2.

Dr. Charles B. Huggins addressed the Chicago Urological Society, May 24, at the Medical and Dental Arts Club on "Diverticulum of the Spermatid Ducts in the Region of the Prostate Obstructing Urination."

Dr. Logan Clendening, Kansas City, Mo., addressed the Chicago Society of Internal Medicine, May 27, at the City Club on "The Plague Saints"; Dr. Joseph L. Miller, on "The History of Syphilis," and Barry J. Anson, Ph.D., on "Evolution of Anatomic Illustration."

The St. Clair County Medical Society, East St. Louis, was addressed, May 2, by Dr. E. R. Kellersberger of the Belgian Congo, Africa, on "Medicine in Central Africa"; Dr. Kellersberger has spent fourteen years practicing in Africa.

Dr. Julius H. Hess, professor of pediatrics, University of Illinois, was nominated by the National Research Council as a guest delegate to the Conference on Research in Child Development, Toronto, May 2-4, following which he attended a conference in Washington as consultant to the department of labor.

The Benjamin J. Rosenthal Charities, Inc., Chicago, at a luncheon at the Chicago Municipal

Tuberculosis Sanitarium, May 1, awarded a medal to Dr. Benjamin Goldberg, secretary of the board of directors of the sanitarium, in recognition of his efforts on behalf of medical education in tuberculosis.

Dr. Ludwig Hektoen, head of the department of pathology at the University of Chicago and director of the John McCormick Institute for Infectious Diseases, was decorated, May 14, with the order of St. Olaf, conferred by the king and legislature of Norway for "distinguished service in medical science," Consul General Olaf Bernts, Norway's representative in Chicago, presented the decoration at a banquet in the La Salle Hotel.

Douglas County Medical Society, recently passed memorial resolutions for Drs. Newton C. McKinney of Camargo, Owen M. Slater of Atwood and Paul A. Slater of Hinsboro.

News Notes

—The Chicago Laryngological and Otological Society held its annual meeting and dinner at the Olympia Fields Country Club, May 14.

—The Chicago Roentgen Society and the Chicago Orthopedic Club met jointly, May 9, at the Virginia Hotel; Dr. James S. Speed, Memphis, Tenn., spoke on "Extra-Articular Fusion of the Sacro-Iliac Joints."

—The Chicago Council of Medical Women will be addressed, June 1, at the Medical and Dental Arts Club by Drs. Bertha M. Shafer on "Spinal Fluid Findings in the Diagnosis of Syphilis," and Eloise Parsons on "Diagnostic Value of Blood Chemistry."

—The Chicago Ophthalmological Society was addressed by Drs. George W. Hall and Roland P. Mackay at the Medical and Dental Arts Club, May 27, on ophthalmoplegic migraine and by Dr. George F. Suker, on idiopathic hypertension and its ophthalmic findings.

—The symphonic band of the Royal Belgian Guards, under the patronage of King Albert and the Belgian ambassador to the United States, gave two benefit performances for the building fund of the Henrotin Hospital at the Auditorium Theater, May 19.

—The Chicago Tuberculosis Society was addressed, May 16, at the Medical and Dental Arts Club by Dr. Arthur J. Cramp, director, Bureau

of Investigation, American Medical Association, on "Consumption Cure Quackery" and by Dr. Meyer Solomon on "Psychology of the Tuberculosis Patient."

—The Chicago Gynecological Society was addressed, May 17, at 50 East Erie Street, by Prof. Carl G. Hartman, Ph.D., Johns Hopkins University School of Medicine, Baltimore, on "A Motion Picture of Parturition in the Monkey" and "Menstruation and Associated Phenomena in the Monkey."

At the 32nd Annual Session of The American Gastro-Enterological Association, held at Atlantic City, N. J., May 6-7, 1929, Dr. Frank Smithies, Chicago, donated a fund with the object of the Association's securing annually a guest speaker of national prominence in research work.

The proceeds of the fund assure an honorarium to the invited guest of \$100.00. This annual address is to be known as "The Walter C. Alvarez Lecture."

—The Henry County Medical Society was addressed at its annual meeting at Kewanee, May 2, by Drs. David J. Davis, dean, and professor and head of the department of pathology and bacteriology, University of Illinois College of Medicine, Chicago, on "Lung Abscess with Special Reference to Fusospirochetosis," and Jerome R. Head of the same school on "Surgical Aspects of Lung Disease."

—The Chicago Surgical Society was addressed, May 3, at the University Club by Dr. Jacob R. Buchbinder, F. R. Heilman and Dr. George C. Foster on "Effect of Hypertonic Dextrose Solution on Experimental Peritonitis"; Dr. Hilger P. Jenkins, on "Rôle of Duodenum, Pancreatic and Biliary Secretion in Toxicity of Intestinal Obstruction," and Dr. James C. Ellis and Dr. Lester R. Dragstedt on liver autolysis in vivo.

—The state health officer, Dr. Andy Hall, says that the fifteen county tuberculosis sanatoriums in Illinois care for about 1,200 patients a year. They have a total bed capacity of 815, and they operate at an aggregate expense of \$620,000 a year. Of the patients admitted only 15 per cent. have incipient tuberculosis; fully one-half have advanced tuberculosis. The tuberculosis death rate last year in Illinois was 73.5 per hundred thousand of population, the lowest rate on record for the state. There were 5,441 deaths due to tuberculosis.

—The state department of health announces

that cerebrospinal meningitis is more prevalent in Illinois now than it has been in ten years. More than 225 cases had been reported up to April 26 this year, an increase of 35 per cent. over the corresponding period of last year. An increase of meningitis is being reported at this time in other states, especially in the Midwest and West. During 1928, in Illinois 458 cases were reported; about half of them were fatal.

—The new Passavant Hospital on the campus of Northwestern University Medical School, East Chicago Avenue near the lake, was opened to the public, May 21. Patients will be received, June 3. Dr. Irving S. Cutter, dean of the medical school, will be superintendent, and the staff will be members of the faculty of the school. The \$2,000,000 institution will open with 200 beds, the east wing being used to house 100 nurses until a nurses' home is built. Dr. A. W. Passavant founded the Passavant Hospital in 1865. It was destroyed by fire in 1871, rebuilt in 1885, and four years ago was closed because the building was inadequate.

—Loyola University School of Medicine announces the establishment of the Samuel A. Matthews Lectureship by the Phi Beta Pi fraternity. The first Matthews lecture, given by Dr. Arthur L. Tatum, professor of pharmacology, University of Wisconsin Medical School, Madison, on "A Physiologic Interpretation of Morphine Addiction," in the Mercy Hospital Amphitheater, May 20. The late Dr. Matthews was professor and head of the department of physiology, pharmacology and therapeutics at Loyola, and previously was on the faculty of the University of Chicago and of Rush Medical College.

—During the "summer round-up" of the parent-teacher associations, the state department of health will cooperate to bring about the physical examination of every child who will make his initial entry in school next fall. The public health nurses of the department have been instructed to render every possible cooperation with the parent-teacher associations in this work. The department of health will furnish moving pictures. The Illinois Congress of Parents and Teachers will furnish examination forms to its component units. There are said to be about 250,000 children who will enter school for the first time this fall.

—The late Milton L. Hartman bequeathed

\$100,000 to establish and endow a curative workshop at Michael Reese Hospital, which will be in operation within two months in the Babette and Emanuel Mandel Clinic. Dr. John S. Coulter, assistant professor of physical therapeutics, Northwestern University Medical School, and Dr. Daniel H. Levinthal, instructor in orthopedic surgery, will be in charge. This is said to be the first endowed curative workshop in the country. Occupational therapy, since the World War, has been extensively employed in caring for the sick, not only to occupy the mind but to restore impaired functions.

—The Chicago Medical Society is sponsoring another series of summer clinics which will be held at Cook County Hospital, June 17-29, and will be devoted primarily to general medicine and surgery, although practically all phases of medical practice will be discussed. There will be eight hours of clinics and ward walks each day and six evening addresses by physicians other than those on the hospital staff. When a sufficient number have registered to fill the hospital others cannot be accepted. There will be a registration fee of \$10 for the period. Communications should be addressed to the Chicago Medical Society, 185 North Wabash Avenue.

—The Scientific Session of the American Heart Association will be held in Portland, Oregon, July 9, 1929, during the meeting of the American Medical Association.

—For 1928 the peak for patients under supervision of the Municipal Tuberculosis Sanitarium, 45,905 was reached, with 255,969 patient visits to the eight dispensaries and 359,287 nurses' home visits. The dispensary dental division rendered service to 83,776 patients, all but 806 of whom were children. These patients could not afford the services of a private dentist. The dispensary roentgen-ray division increased its work more than 100 per cent. in 1928, when 7,470 roentgenograms were made. Sixty-one open window rooms in the public schools are now under supervision. The death rate per hundred thousand has reached the lowest point ever reached for the white population; namely, 60.6. Because of the marked migration of negroes in the last six years, resulting from industrial necessity, the negro death rate has increased to 447 per hundred thousand, representing 778

deaths for a population estimated at 173,889. The Mexican population, also of recent migration, has contributed eighty-one deaths in 1928. To combat this serious situation, a special lecture and practical course in tuberculosis was given to a group of more than fifty negro physicians. This was followed by an intensive house to house survey, to find individuals with tuberculosis who have never been under supervision. Ten thousand dodgers were printed and distributed by negro boy scouts during negro health week, asking that all persons have a complete physical examination by their private physicians during the month of April. Other activities in the field are special studies on 500 children who have been "contacts" to tuberculosis cases; a special study and survey of all patients with tuberculous meningitis dying in Chicago during 1928; a study of all known contacts to all known active tuberculosis cases in the entire city; a survey of the Mexican situation involving a detailed examination of 1,200 Mexicans; and a survey and detailed examination of 1,000 high school girls to determine the incidence of various defects. At the Municipal Tuberculosis Sanitarium, approximately 300 senior medical students of the class A medical schools have received a resident clerkship, in addition to special clinics and lectures. Two resident fellows are about to complete their first year, one in medicine and one in chest surgery.

—Michael Reese Hospital announces the establishment of the Emil and Fannie Wedeles Fund for the Study of the Heart and Circulation, by Mrs. Fannie Wedeles of Chicago in memory of her husband, who died of heart disease. The studies will be clinical, laboratory and social in the hospital wards and in the out-patient cardiac clinics of the Mandel Clinic. Emphasis will be placed on the social aspects of heart disease. The work will start with an investigation of "angina"; rheumatic heart disease in children, the goiter heart and other forms will be taken up as opportunities arise. Members of the cardiovascular group of the staff of Michael Reese Hospital will direct the work. Mrs. Wedeles and her nephew, Dr. Samuel Goodman of Tulsa, Okla., will be ex officio members. The income from the fund will vary, but for the next five years it will be \$7,000 a year.

—The District Medical society of Central Illi-

nois held its 53d annual meeting in Pana, Tuesday, April 30, presided over by the president, Dr. Samuel B. Herdman of Taylorville.

The program began at 9:30 o'clock in the morning with practical clinics at the Huber Memorial hospital. General surgical clinics were in charge of Drs. W. G. Wallace, T. O. Freeman and B. H. Hardinger, all of Mattoon.

The eye, ear, nose and throat clinics were in charge of Drs. C. B. Voight and Paul Hardinger, also of Mattoon.

The medical clinic was under direction of Dr. Hugh McCullough, assistant professor of Internal Medicine of Washington University medical department and physician to Children's hospital, St. Louis.

Luncheon was served at the noon hour at the Frances hotel.

Following the noon hour the following papers were taken up and discussed:

"Some unusuals in Pediatrics"—Dr. B. Raymond Cole of Mattoon; "Obsterical Experience and Use of Twilight Sleep"—Dr. E. E. Richardson of Mattoon; "Cardise Diseases in Children"—Dr. Hugh McCullough of St. Louis.

The election of officers resulted as follows: president, Dr. C. B. Voight, Mattoon; vice-president, Dr. C. H. Hullick, Shelbyville; secretary-treasurer, Dr. F. A. Martin, Pana; censors, Drs. J. F. Miller, Palmer; Charles Lockart, Witt, and J. W. Patterson, Oconee.

—The Julius Rosenwald Fund will contribute \$50,000 a year for five years to support the University of Chicago clinics on condition that \$100,000 a year be raised from other sources; Max Epstein and Albert D. Lasker each pledged \$25,000 a year for five years. John Hertz has given the university \$75,000 for a study of disorders of the pituitary gland and related conditions. The Quaker Oats Company has granted \$4,500 for an investigation of the nutritive value of unirradiated and irradiated farina and the effect of ultraviolet rays on the various types of proteins; it has granted \$3,600 for a study of certain properties of cereals treated with ultraviolet rays. The following contributions have been made to the library fund of the Billings Hospital: Dr. Frank Billings and Mr. C. K. G. Billings, Mr. Charles Ruddock and the Knapp Fund each \$1,000, and Dr. Lester E. Frankenthal, \$257.24. Harriet F. Holmes has been ap-

pointed research associate in the department of pathology for one year from January. Milton T. Hanke has been promoted to associate professor of biochemistry in the department of pathology for one year from January, and Dr. William Bloom has been promoted to assistant professor in the department of anatomy, effective March 15, 1929.

Deaths

DONALD EDWARDS BELL, Evanston, Ill.; Indiana University School of Medicine, Indianapolis, 1922; aged 33; died, April 20, of Banti's disease.

JAMES EDDINGTON CONNETT, Lawrenceville, Ill.; Indiana Eclectic Medical College, Indianapolis, 1883; aged 67; died, April 29, of heart disease.

EDWIN V. CORY, Chicago; Northwestern University Medical School, Chicago, 1896; member of the Illinois State Medical Society; aged 55; died, April 17, of chronic myocarditis and nephritis.

ALBERT GARVER, Lima, Ill.; Keokuk (Iowa) Medical College, 1893; member of the Illinois State Medical Society; aged 60; died, April 7, of uremia.

FREDERICK ROBIN GREEN, Chicago; Northwestern University Medical School, 1898; a Fellow, A. M. A.; assistant editor of the ILLINOIS MEDICAL JOURNAL, 1905-6; assistant secretary, A. M. A. 1906-10; secretary and executive officers of Council of Health and Public Instruction, A. M. A., 1910-1922; first lieutenant, M. O. R. C., 1908-1917; captain, 1917; major, M. C., 1918; lieutenant colonel, M. O. R. C., 1925; secretary of Medical and Dental Arts Club, 1924-26; aged 59; died, April 26, of cardiovascular disease.

HARVEY BRUCE HARRIS, Chicago; University of Nebraska College of Medicine, Omaha, 1927; aged 35; died, Nov. 6, 1928, of poisoning by sodium cyanide taken accidentally.

FRANK WEBSTER JAY, Evanston, Ill.; Rush Medical College, Chicago, 1890; formerly associate professor of surgery at his alma mater; veteran of the Spanish-American War; aged 61; died suddenly, May 12, of angina pectoris.

THOMAS BENTON PLOWMAN, Georgetown, Ill.; Indiana Medical College, Indianapolis, 1878; aged 78; died, April 20, at the Lake View Hospital, Danville, of uremia and hypertrophy of the prostate.

LEONARD CARDINAL QUINN, Chicago; University of Illinois College of Medicine, Chicago, 1909; aged 45; formerly on the staff of St. Mary of Nazareth and St. Elizabeth's hospitals; on the staffs of the Columbus Hospital, American Hospital and the Edgewater Hospital, where he died, in April, of pneumonia.

JOSHUA C. STONECIPHER, Rend, Ill.; Denver and Gross College of Medicine, 1909; aged 71; died, April 9, of heart disease.

FRANCIS WILSON WYLIE, Emma, Ill.; St. Louis College of Physicians and Surgeons, 1898; aged 61; died, March 18.

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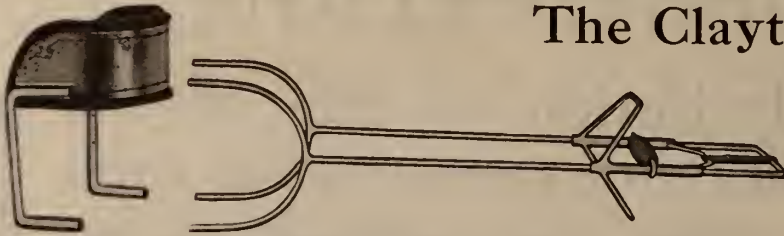


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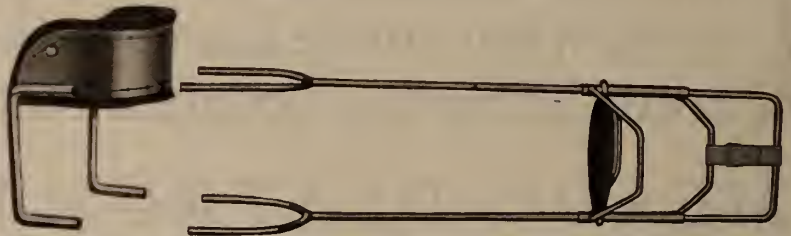
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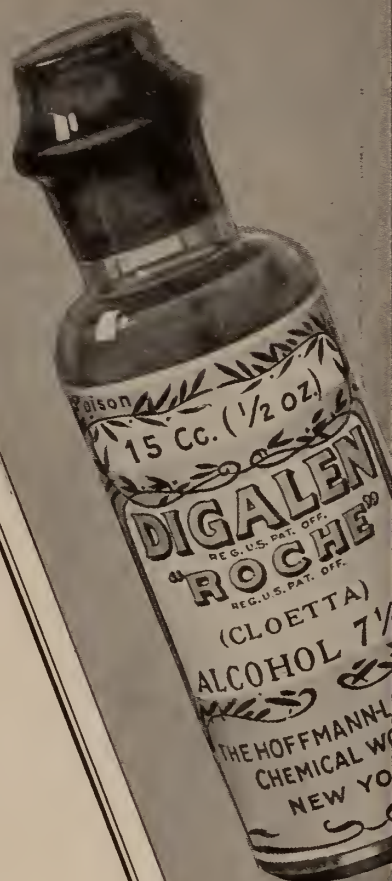
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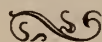
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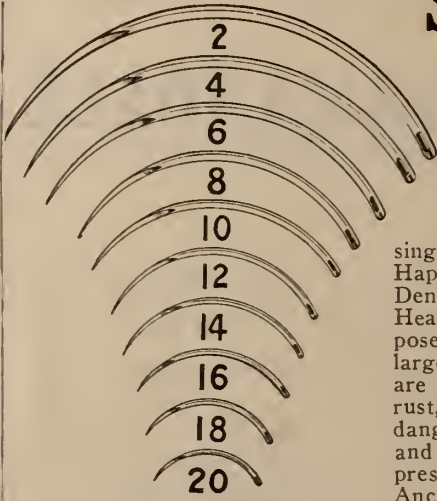
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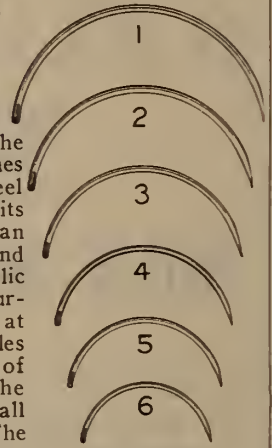
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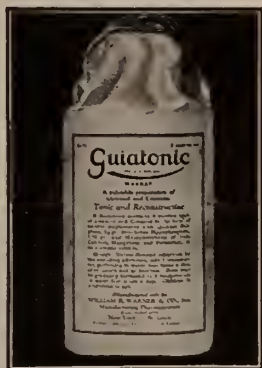
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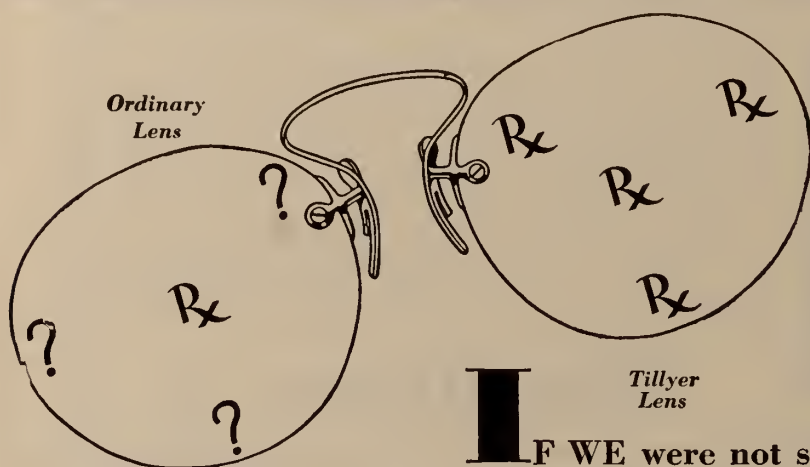
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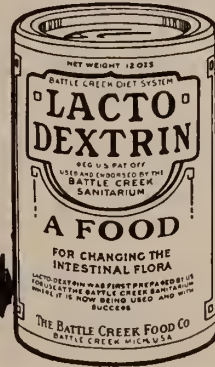
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Dr. Solomon Strouse, Associate Professor of Medicine at Rush Medical College, in his address at the New York Academy of Medicine, as quoted by the *Evening World*, said: "I am beginning seriously to wonder whether scientific efforts at diet control based on animal experiment are not overshooting the mark; whether we are not interpreting the life of a caged white rat rather too seriously for the comfort of a free white man." He went on to say that "food and food habits in general play no important role in the attainment of longevity. . . . Despite much that I read of the evils of the modern way of eating and living, I find in actual practice comparatively few examples of excessive food indulgence to the point of harm. . . . It is possible to conceive of undernutrition causing more trouble than overeating."

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Leaves from a Therapeutic Note Book

No. 3

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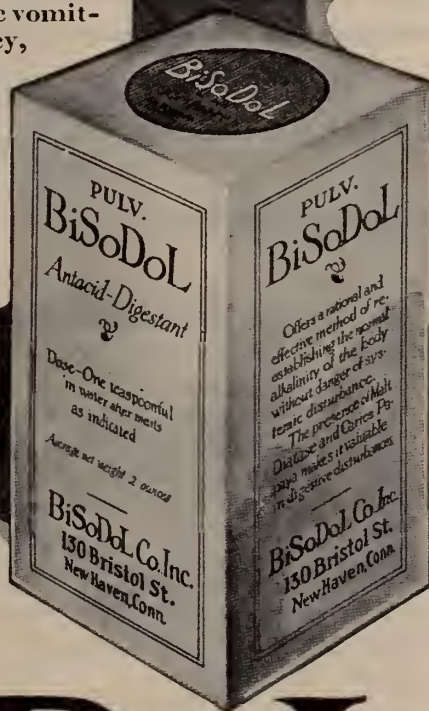
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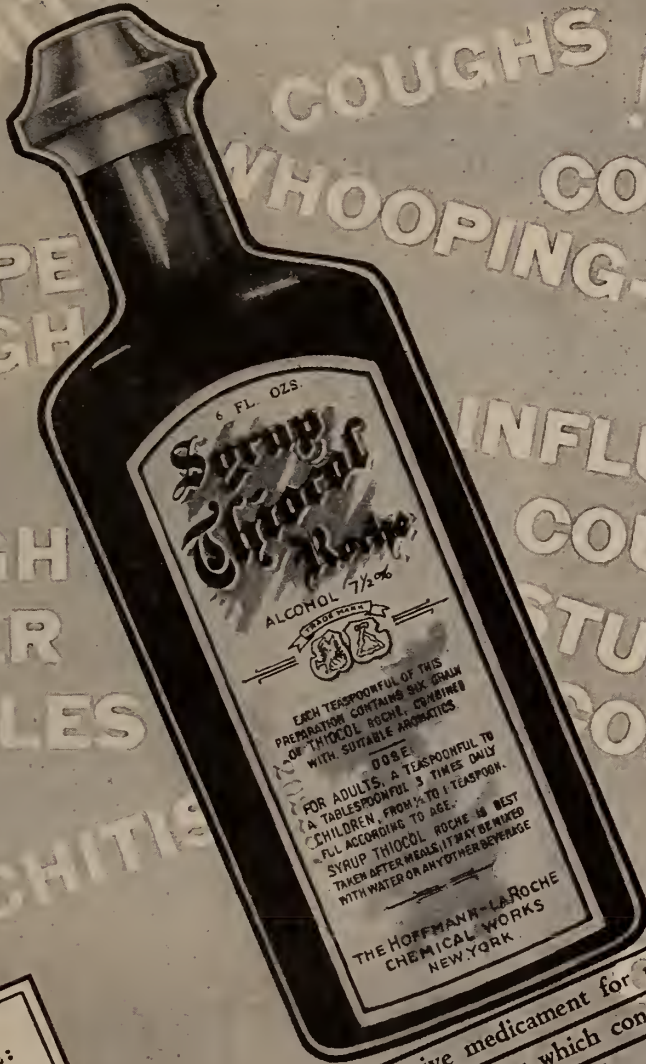
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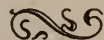
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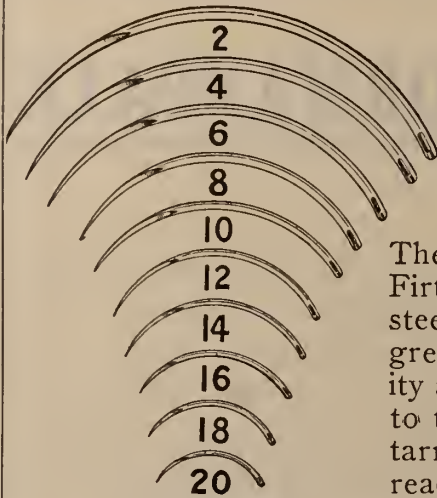
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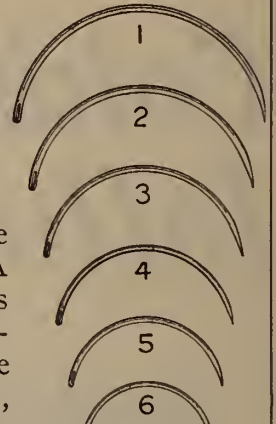
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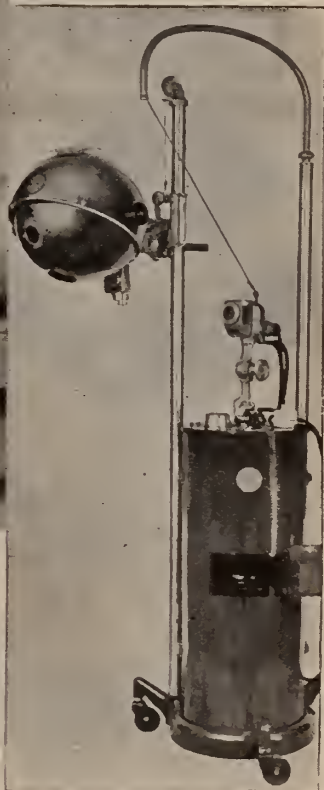
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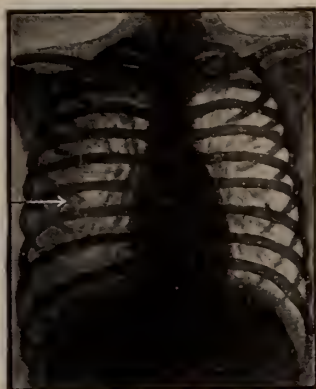
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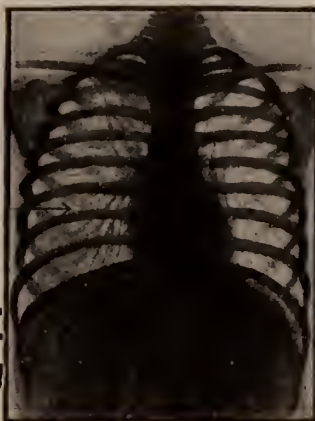
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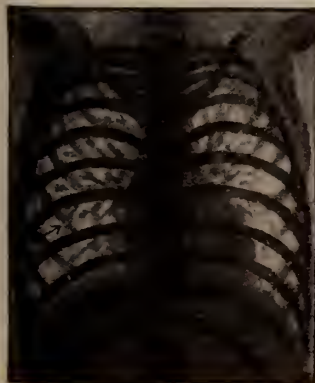
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The Lodge and Gymnasium are shown in the lower left; the ice-house and boat house are on the lake front. The new Sanatorium unit and the Hospital overlook the lake. The greenhouse, garage, and powerhouse are in the left center of the view. The Oconomowoc river flows through the property. Highway U. S. 16 is seen in the distance.

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The Summit Hospital was organized in 1923 with the expressed purpose of maintaining in a general sanatorium a department for nervous disorders, where such cases could be treated for physical as well as mental anomalies. We are subscribed to the idea that many of the neuroses are precipitated by physical defects which are correctable by accepted methods of Medicine and Surgery. It is gratifying to us, therefore, to see the tremendous increase of reports in our periodicals substantiating such procedures.

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A comparative study of fermented and unfermented teas as antiscorbutics



Various commercial teas, fermented, semi-fermented, and Japan tea, have recently been tested¹ as antiscorbutics. This comparative study was made to substantiate the findings of Miura,^{2, 3} which have indicated the presence of Vitamin C in Japan green tea.

The curative method was applied to forty guinea pigs. With but one exception, all animals treated with pan-fired Japan tea recovered. Two of them were cured of scurvy on a daily dose of only ten cc. All but one⁴ of the subjects administered the fermented tea died within a short time, though given amounts ranging as high as twenty-five cc.

Tabulated results of the experiments show the minimal daily dose of Japan tea to be apparently between ten and fifteen cc. (about one-half fluid ounce) of a two per cent infusion. This effectiveness the investigator finds "rather startling" in view of the small amount of solid matter present.

Differences of antiscorbutic potency in the teas have been attributed largely to differences in the curing process. Oxidation is known to destroy Vitamin C. In fermented teas, the oxidasic enzymes develop full activity. In Japan tea, such as obtained from the ordinary

commercial sources, fermentation is prevented by sterilization of the leaves immediately after picking.

Japan tea as a source of Vitamin C in the daily diet gains importance in the light of recent researches and observations. These combine to suggest the probable widespread existence of a "latent scurvy" due to lack of the vitamin. Continual low intake of "C" produces a general malaise characterized by these symptoms: loss of energy, sallow, muddy complexion, fleeting pains in joints and limbs frequently mistaken for rheumatism.

Physicians planning diets to increase the daily intake of Vitamin C may find in Japan green tea a convenient method. American-Japanese Tea Committee, 782 Wrigley Building, Chicago.

¹ As this is an advertisement, it has not been possible to give here the name of the American scientist and of the University concerned. These names will be supplied to physicians upon application. American-Japanese Tea Committee, 782 Wrigley Building, Chicago.

² Miura, M: *Proc. Japanese Assoc. Agricult. Chem.*, Vol. 1, No. 1, October, 1924.

³ Miura, M: *Publ. Assoc. Tea Merchants*, Feb. 1926.

⁴ Anaesthetized for examination.



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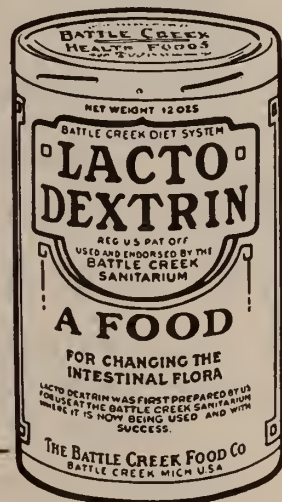
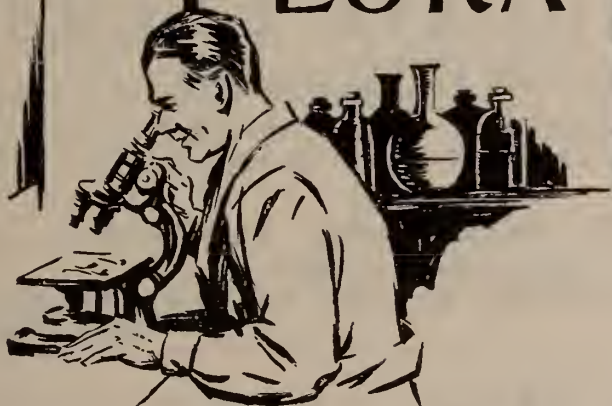
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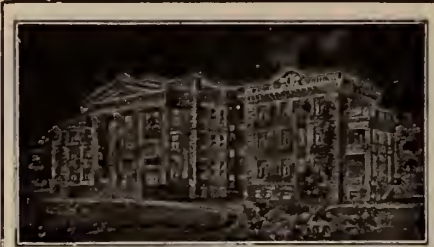
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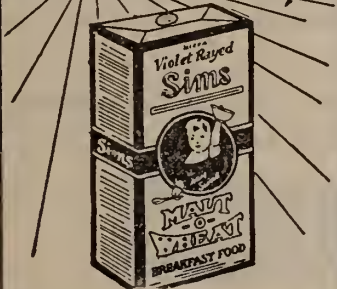
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"2. The very unusual clinical aspects of alcoholism as shown by 6 cases reported in detail are due probably to other poisons than alcohol.

"3. Alcoholism frequently causes traffic accidents.

"4. Chronic alcoholism has changed in the respect that the daily "tipster" has given away to an individual who indulges in frequent sprees, but not daily drinking.

"5. Delirium tremens is relatively rare at present—probably due to the change in the habits of the chronic alcoholic.

"6. Alcoholic neuritis at present is characterized by rapid onset, usually less than four weeks before definite muscular weakness appears. Weakness is the outstanding complaint in 72 per cent. of the cases.

"7. Alcoholic cirrhosis is essentially the same as before prohibition.

"8. Of 154 patients hospitalized for alcoholism 8 died, 4 from acute alcoholism with complications, namely cerebral hemorrhage, lead encephalopathy, diabetes and colitis; and 3 from cirrhosis, and 1 from wood-alcohol poisoning."

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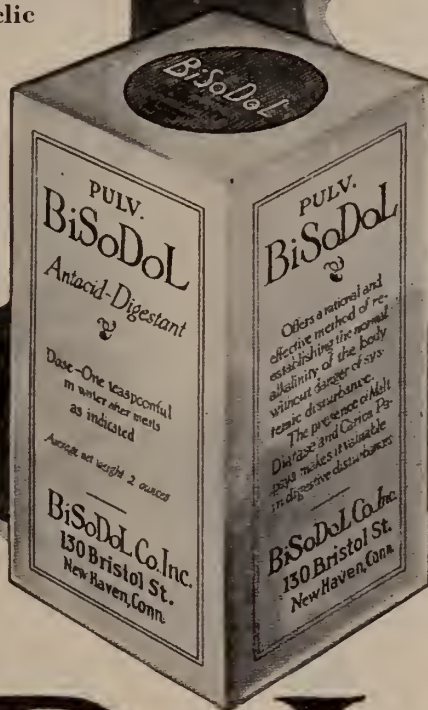
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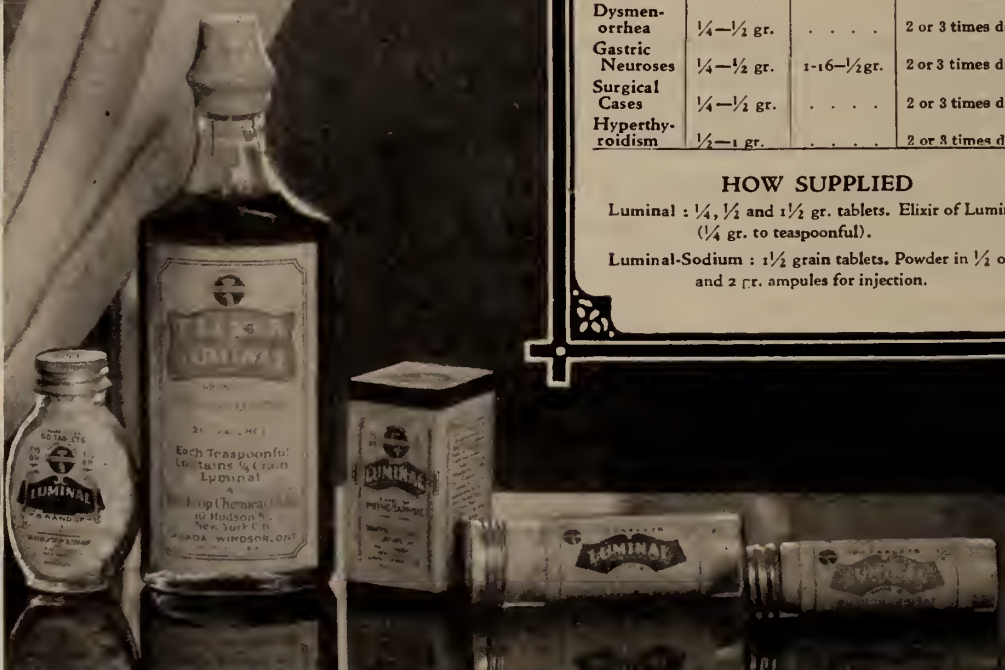
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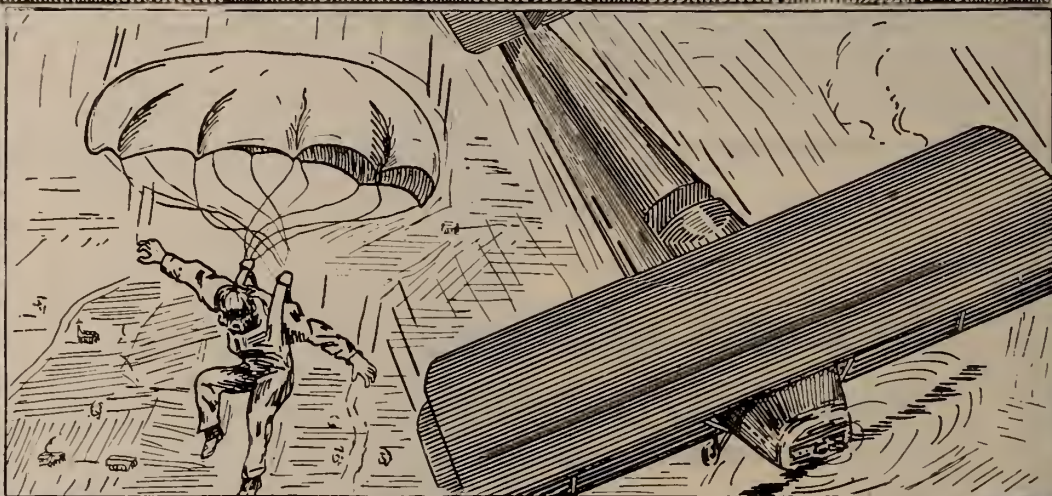
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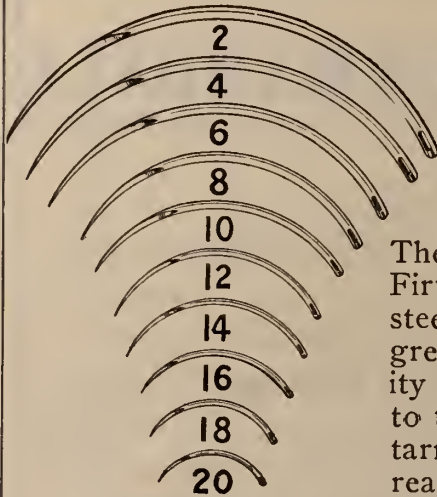
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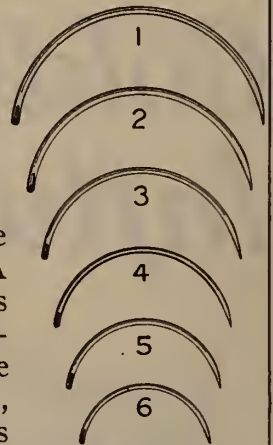
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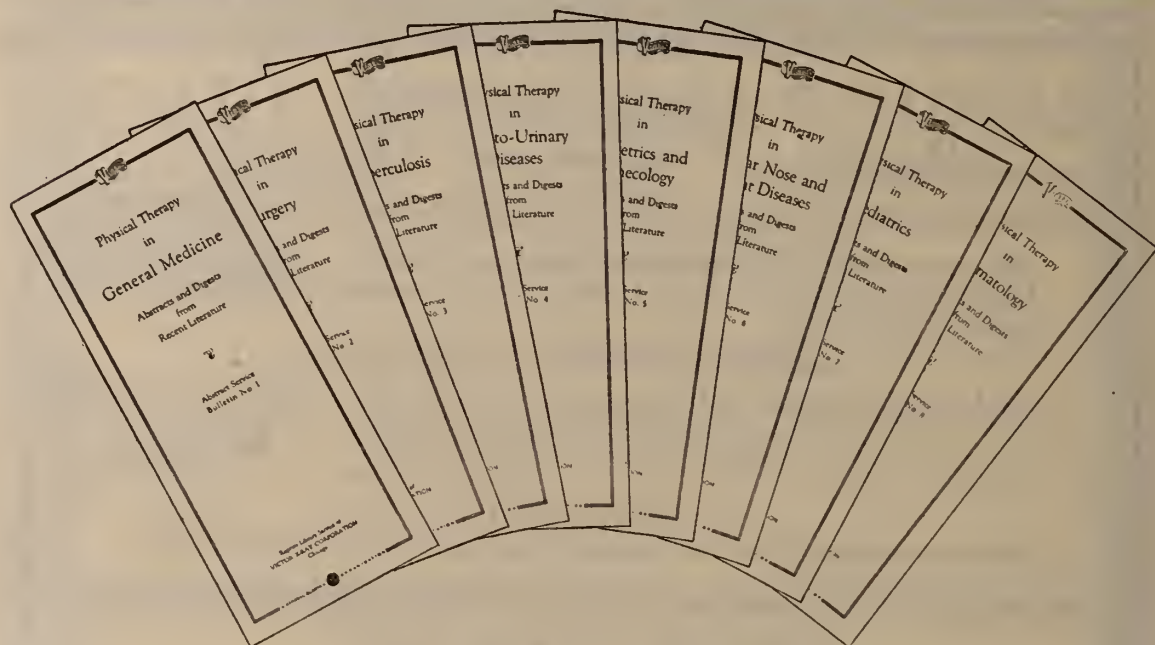
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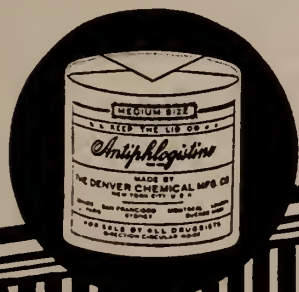
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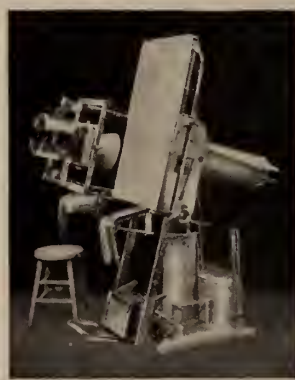
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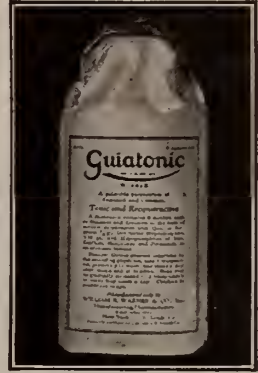
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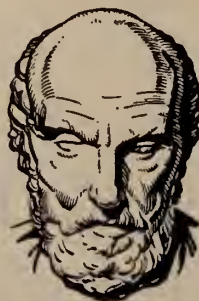
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The booklets listed below demonstrate the value of Knox Sparkling Gelatine in medicine, and suggest a number of appetizing recipes for the various indicated diets. Surgeons, doctors, dieticians, and members of hospital staffs will find them practical references. Check the coupon below and mail it to us.

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Please send me, without obligation or expense, the booklets which I have marked. Also register my name for future reports on clinical gelatine tests as they are issued.

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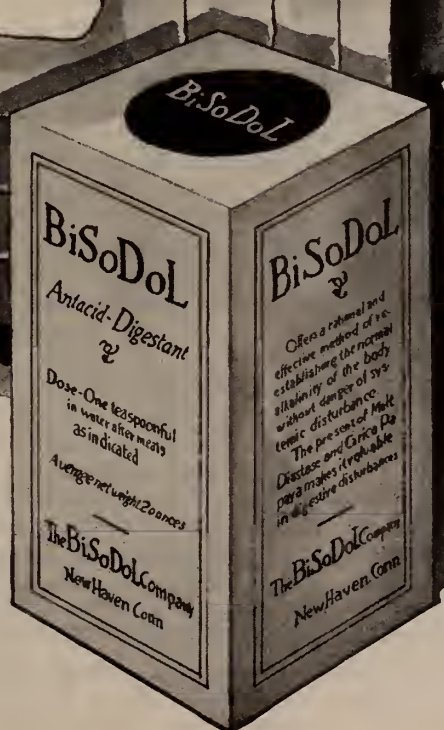
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Correcting dangerous food fads

SUGAR &

COMMON SENSE

needed in the diet

☞ *Evidences that medical and scientific men are leading a swing toward sanity in diet.*

DIETARY opinion in the United States in recent years has been swept by numerous nation-wide food fads, most of them ludicrous, many of them harmful. The craze for slimness, exposed as dangerous by many physicians, is an example. The fad for eliminating sugar from the diet is another.

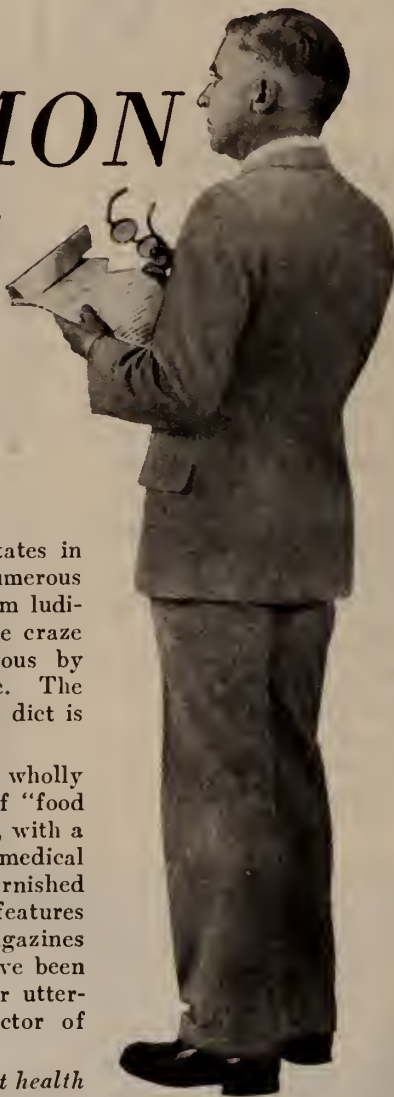
Diet misinformation cannot be wholly blamed on the public. A swarm of "food extremists," laymen and laywomen, with a smattering of terms gleaned from medical and scientific publications, have furnished an endless supply of articles and features to the newspapers and popular magazines and radio. These "authorities" have been read and heard by millions. Their utterances have had the attention factor of sensational interest.

It is a dangerous policy to entrust health education to lay writers. It is time for medical and scientific authorities to eliminate the dangers of faddism with precepts of intelligence and common sense.

There are evidences that medical and scientific men are leading a swing toward sanity in diet. Twelve medical specialists and dieticians recently prepared a symposium exposing the dangers to men, women and girls of starvation diets and "reduction treatments," so called, for slimness.

"The most delicate parts of the body are always the ones to suffer first," says one of the medical specialists. "Keep children and young people well nourished and up to weight," says another.

Medical directors before an eastern tuberculosis conference recently warned of the dangers of under-dieting of young girls. "The most difficult



problem," said one of the directors, "facing us in combating tuberculosis among high-school girls, and particularly among the young flappers of today, is the serious habits they practice to retain or acquire a slim and graceful figure. . . . The problem of nutrition is the one we have to face in our treatment of girls of this age. It is at this age that girls are most susceptible to tuberculosis and other diseases."

A research food biologist, at one of the great universities, recently said: "Sugar is a carrier for roughage in the diet — mineral salts, mineral ash, and fruit vitamins. Sugar modifies the harsh fruit acids and makes the fruits palatable. It

does not injure or change in any way the delicate compounds. At least 90% of constipation is due to a lack of roughage. Eat bran, fruits and vegetables sweetened to taste."

The ranking biological chemist at another great university recently said: "Sugar is nature's incomparable flavoring agent. Sugar is one thing that relieves the deadly dullness of our overly refined foods. Also, sugar is wholesome and the most inexpensive condimental food in the world."

Sanity in diet calls for varied roughage foods. In addition to milk and milk products, young people and adults should eat a varied diet of cereals, fresh or canned vegetables and fruits. Good food promotes good health. The Sugar Institute, 129 Front Street, New York, N. Y.



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Many advanced features of construction make the new Battle Creek Super Solar Arc Lamp noteworthy. A snap of the switch starts the arc burning at full power. No time is lost in waiting for the rays to attain adequate intensity. The lamp being *automatically adjusted by magnetic feed, the largest arc possible* with the given current is always maintained.

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In the treatment of irregularities of menstruation rational therapeutic procedure is directed to the restoration of normal balance in the endocrine and vegetative nervous systems.

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contains thyroid, pituitary and gonad substance combined to take advantage of the demonstrated synergism existing between them. In the treatment of these disorders of menstruation Hormotone has been very successful.

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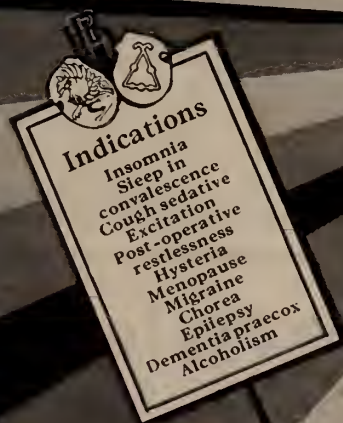
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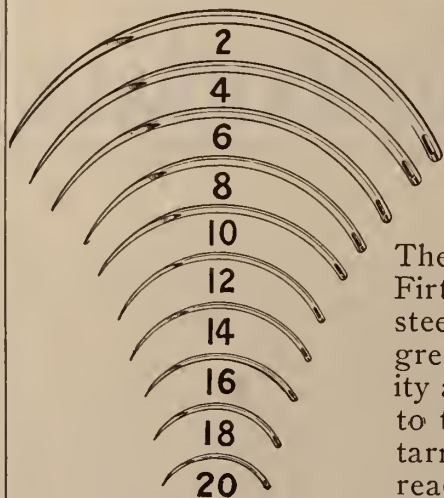
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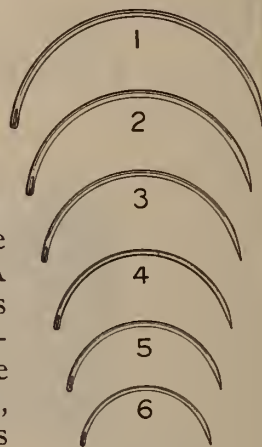
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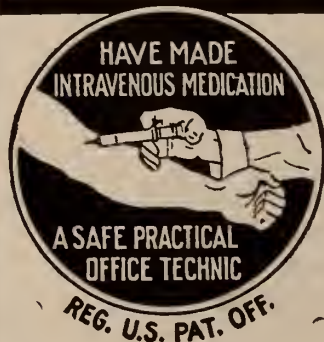
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B. Fantus, M.D. (“The Technic of Medication”, A. M. A. Press, 1926).

FROM time immemorial psychotherapy has played a large, though often unrecognized, part in all successful treatment. The application of the general principles of psychotherapy includes all measures, apart from the physical, of influencing the patient and of helping him to overcome disease.

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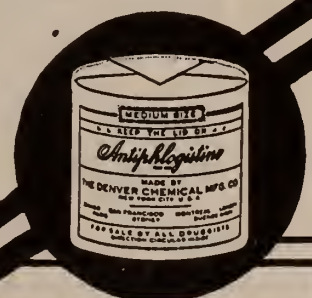
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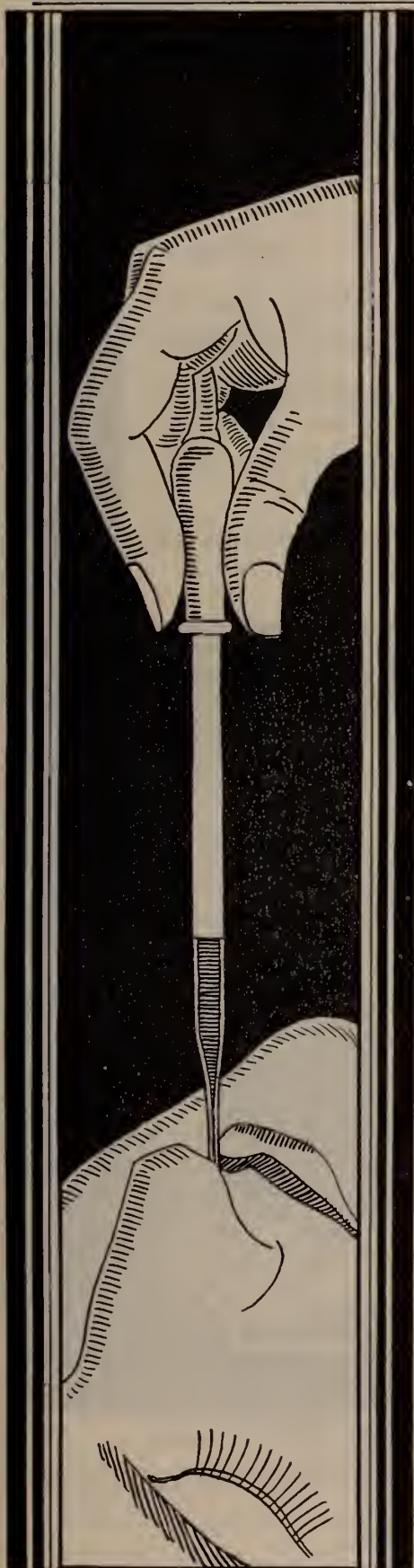
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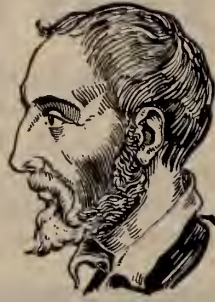
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It was not the old time apothecary's show window, nor any latent or developed interest in the compounding of drugs that influenced his decision. He knew nothing of them, but he did know the story of the Good Samaritan and its significance. Inherent was the human desire to be useful. This was his spirit. A few years later, in 1861, it led him into the service of his country as a soldier. In civil life pharmacy, happily, became its medium.

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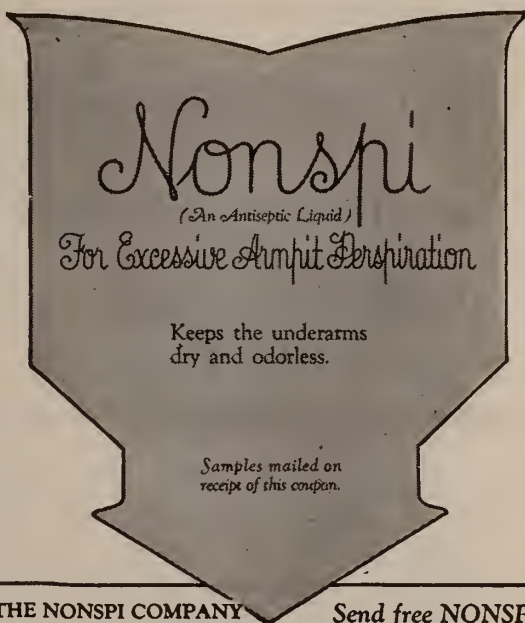
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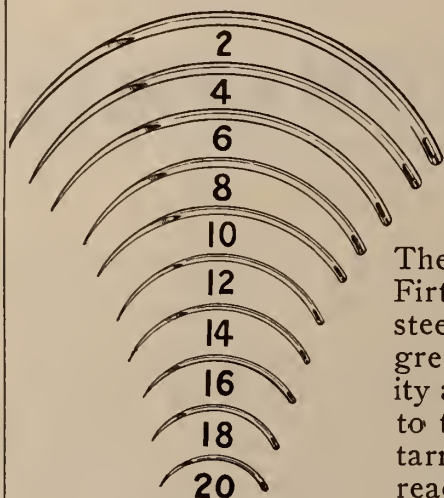
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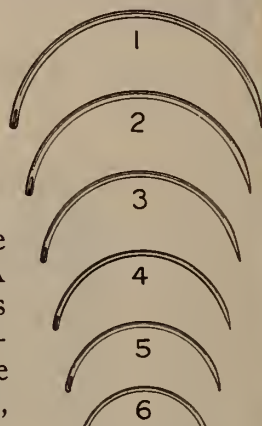
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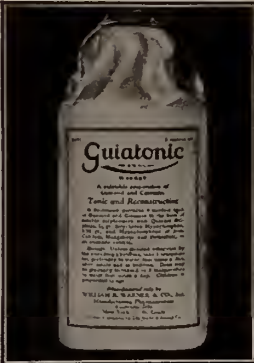
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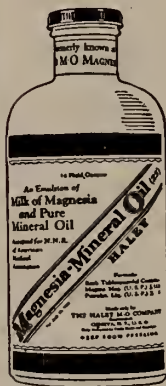
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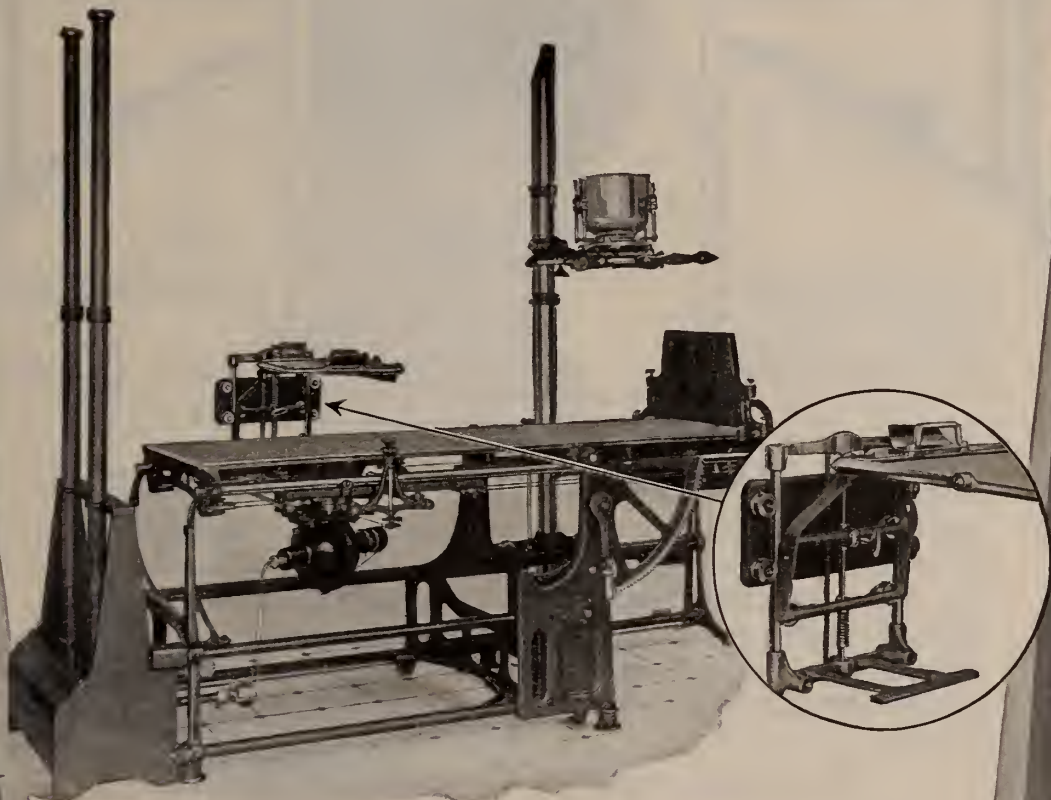
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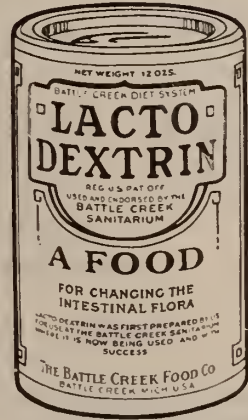
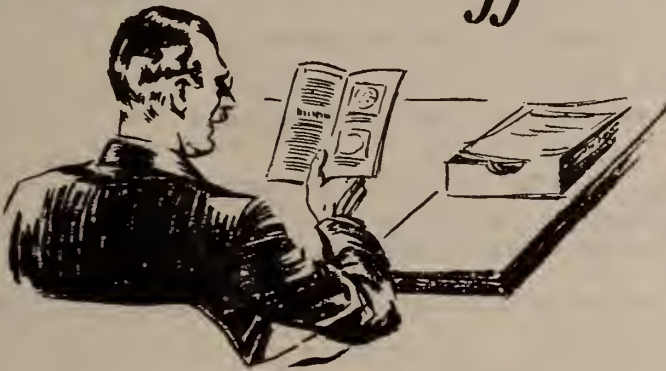


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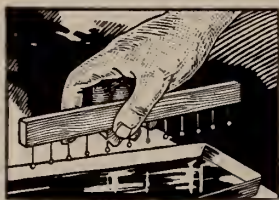
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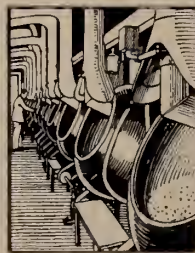
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for slimness ruinous to health
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☞ *Doctors and nurses, in warning the public of the dangers of extreme dieting, will find support in the sad experience of motion picture stars.*

A NEW danger to the health of motion picture stars has just been revealed. The motion picture camera, in photographing a star, adds from 5 to 20 pounds to the appearance of her figure, so that many of the screen celebrities, because of the fad for slimness, have felt called upon to undergo rigorous programs of dieting.

Photoplay Magazine recently announced that many of the stars have suffered collapse because of this dangerous practice. One famous star died of tuberculosis aggravated by weightreduction. Another ruined her career and was made an invalid by starvation. Still another resorted to quick-reducing medicines and is today virtually an invalid. Another star, as mentioned here, collapsed on a set from trying to lose 10 pounds.

One of the alarming dieting extremes indulged in by the stars, according to *Photoplay*, is eating no food at all for breakfast, and seriously limiting the quantities of nourishing foods for both luncheon and dinner. It is small wonder that such a wrong standard of diet should result in disaster. No person can be healthy without eating enough nourishing food, daily and regularly.



Physicians and nurses and teachers, looked to by the public as health authorities, should help bring a speedy end to the dangerous practice of indiscriminate diets to reduce.

The "boyish" figure is a false standard of feminine beauty, and its attainment is likely to be at the price of permanent injury.

Modern health opinion recommends a variety of foods, including vegetables and fruits, both fresh and canned, sweetened for enjoyment. Sweetness is the flavor that encourages the ingestion of nearly all the healthful

roughage, vitamin-bearing foods. Breakfast is a meal likely to be slighted by young working girls and many other busy working people. For this meal applesauce is recommended, or grapefruit, dried and canned fruits and cereals, using sugar to develop the delicious flavors of the beneficial foods.

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The first part of the booklet carries a reprint of an article from *Modern Hospital* written by Lulu G. Graves, which discusses the new ideas in diabetic diets. As Miss Graves is Honorary President of the American Dietetic Association, and has specialized in diabetic diets, and has collaborated with leading diabetic authorities, she is well equipped to write advisedly on this all-important subject.

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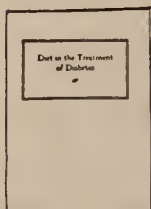
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No. 7

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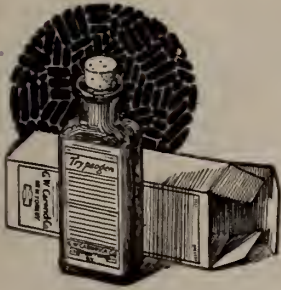
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which give the maximum of satisfaction to the smoker with the minimum reaction against the nervous and circulatory systems.

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*An epochal development
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The Victor Shock Proof X-Ray Apparatus, the latest development emanating from the Victor Research and Engineering Departments, is now in production and available to the profession.

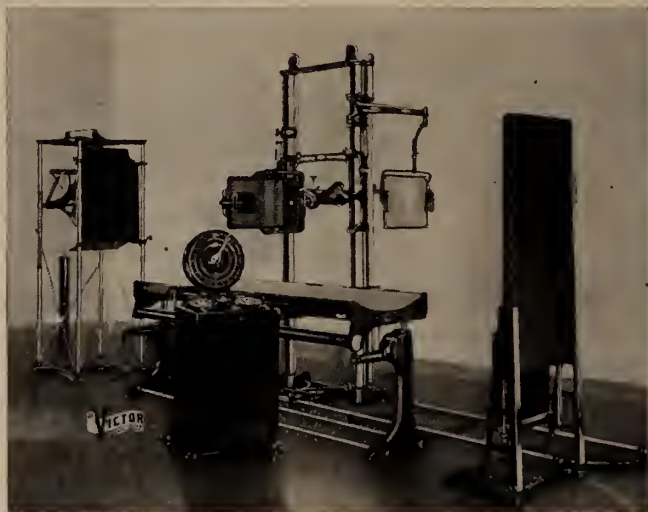
As its name implies, this X-ray unit is absolutely safe against any possibility of operator or patient coming in contact with electric current on any part of the apparatus—the first complete, combination X-ray outfit in the world to incorporate this feature.

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Compact.
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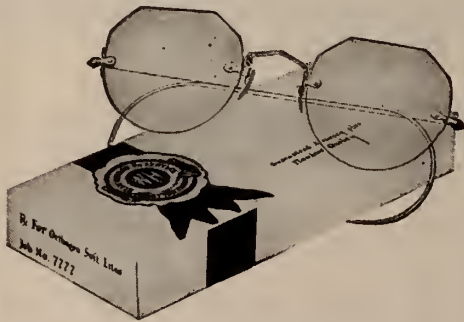
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Practitioners are finding that the new ORTHOGON wide vision lens completes their prescriptions accurately. Accurate focus from center to edge produces same sharp vision at edge as at center . . . finer appearance . . . Bausch & Lomb-made and guaranteed . . . those are a few of the distinct advantages to you of ORTHOGON Wide Vision Lenses.

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Maximal elevation cystoscopy position with operator standing.

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Erect Standing Position

One of the distinctive features
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is the provision for making pyelo-ureterograms in the fully erect standing position. The full extent of renal descent and alteration in the course of the ureters incident to it does not occur in the sitting posture. A pyelo-ureterogram in the fully erect standing position with thighs is frequently essential to proper interpretation.



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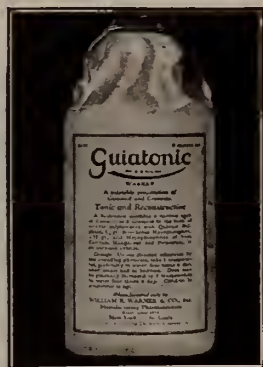
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An intestinal antiseptic that is a tonic too

IN infectious diseases, especially those of the respiratory organs, when infection may easily enter the intestinal tract, you may now achieve a twofold purpose with one remedy.



Guiatonic

by its tonic and reconstructive properties, builds up and fortifies the natural defenses and recuperative power of the body.

Because of the presence of creosote and guaiacol in Guiatonic, it liquefies the secretions, exerts a sedative action upon the affected mucous membrane, and acts as an intestinal antiseptic in the prevention of secondary infection.

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SOLELY as a result of doctors' prescriptions, four million bottles of this tonic have already been used. And still it is growing in the favor of physicians more rapidly than ever before. That is because Hagee's Cordial contains the true extract of cod liver oil in usable, practical form. And today, medical men everywhere are becoming more and more conscious of the fact that a practical way has at last been found to extract the active elements of cod liver oil.

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Write today for a full size sample bottle and formula. See how often this valuable preparation will fit in with the many tonic requirements in your practice. Where shall we send your free sample bottle?

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Cord. Ext. Ol. Morrhuæ Comp. (Hagee)

Dispensed by all druggists in 16 oz. bottles

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G. R. LOVE, M. S., M. D., Physician in Charge
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BIRDSEYE VIEW OF THE SUMMIT HOSPITAL PROPERTY

The Lodge and Gymnasium are shown in the lower left; the ice-house and boat house are on the lake front. The new Sanatorium unit and the Hospital overlook the lake. The greenhouse, garage, and powerhouse are in the left center of the view. The Oconomowoc river flows through the property. Highway U. S. 16 is seen in the distance.

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The Summit Hospital was organized in 1923 with the expressed purpose of maintaining in a general sanatorium a department for nervous disorders, where such cases could be treated for physical as well as mental anomalies. We are subscribed to the idea that many of the neuroses are precipitated by physical defects which are correctable by accepted methods of Medicine and Surgery. It is gratifying to us, therefore, to see the tremendous increase of reports in our periodicals substantiating such procedures.

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Expectant unmarried mothers are cared for at The Lodge up to the time of labor and then are transferred to the hospital unit. The rural location, pleasant environment, beautiful grounds, modern hospital, reasonable rates, and facilities for adoption of baby if arranged will solve a very difficult problem. Inquiries confidential.

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IT is not enough to prescribe for the patient—the medicine must be taken to be resultful. That is why modern pharmaceutical art concerns itself so thoroughly with making the remedy not only purer, more efficient, but palatable and easy to take as well.

If you are not already using

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the systemic alkalizer for the treatment of acidosis

some day you will try it and become readily convinced not only of its effectiveness but of its palatability as well.

Try it. Liberal trial quantity is at your service.

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Yohimbine Hydrochloride	1/12 gr.
Ext. Nux Vomica	1/8 gr.
Sod. Nuclienate	1 gr.
Orchic Substance	1 gr.
Pituitary Substance	1/4 gr.
Thyroid Substance	1/12 gr.
Suprarenal Substance	1/4 gr.

A tonic and alterant to the entire system

Also Ovaphrin Tablets for Women

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The Convalescent

DURING the period of convalescence, Petrolagar is prescribed with great success. It mixes thoroughly with bowel content, mechanically protecting the delicate membrane as does the natural mucus.

Petrolagar avoids any apprehension or anxiety as to bowel function during the days when the patient is slowly regaining strength.

Petrolagar is an emulsion of 65% (by volume) mineral oil with the indigestible emulsifying agent, agar-agar.

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(of bowel movement) and specimens of Petrolagar.

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Diphtheria Toxin Antitoxin

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at any time from any of the

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A fresh potent supply is kept at all times by each of them.

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Diphtheria Is Preventable—

Toxin Antitoxin produces an active immunity.

Immunity develops in from eight to ten weeks and lasts for some years, possibly throughout life.

All children of pre-school age and up to fourteen years should be immunized.

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Refined and Concentrated

A highly refined antitoxin. Small in bulk, low in solids and free from precipitate. Insuring rapid absorption and quick therapeutic results.

For curative treatment and immunization of exposed cases.

Marketed in our perfected syringes in the following packages:

Doses: 1000—5000—10000—20000 units



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Accepted by The Council on Pharmacy and Chemistry of The American Medical Association

Newest Product of the Armour Laboratory

Concentrated Liver Extract, a new organotherapeutic preparation, has been added to the products of the Armour Laboratory. Its principal use is in those cases of pernicious anemia where the patient is unable to take solid food. As the condition improves, it may be employed as a pleasant alternative in the otherwise monotonous solid liver diet.

This preparation is made by the process originated by the late Dr. K. K. Koessler and his co-workers, Drs. M. T. Hanke and S. Maurer, in the laboratory of the Otho S. A. Sprague Memorial Institute at the University of Chicago.

Concentrated Liver Extract contains in soluble and stable form the principles from fresh liver active in blood regeneration. Each 16-ounce bottle contains, in liquid form, the soluble extractive of 8 lbs. of fresh liver. The average dose is one tablespoonful three times a day. It is best administered in milk or orange juice.

Again we earn fairly the reputation for being "Headquarters for therapeutic materials of animal origin."

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"SYNERGISM

is utilized to secure the summation of the desirable effects of several drugs"

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Magnesia-Mineral Oil (25) HALEY

Accepted for N. N. R. of the American Medical Association
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is a uniform, permanent, unflavored emulsion of Milk of Magnesia and Mineral Oil, which exerts LUBRICANT, LAXATIVE and ANTACID action.



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Each Tablespoonful Contains
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*Neo-Silvol Contains 20% Silver Iodide
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Note these facts: Neo-Silvol is fatal to the gonococcus, streptococci, staphylococci, pneumococci, and Micrococcus catarrhalis. Against streptococci and staphylococci it is as actively germicidal as *pure phenol*—and applicable in much more concentrated solution. Against the gonococcus it is *20 times as active as pure phenol*. Yet Neo-Silvol does not precipitate tissue chlorides, nor does it coagulate cellular albumin; weak acids or alkalis or dilute alcohol do not precipitate it.

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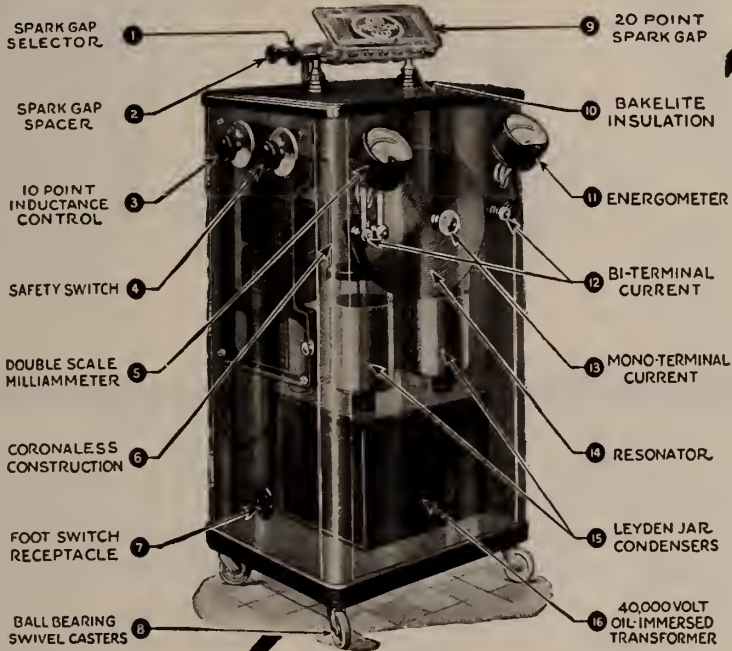
HOW SUPPLIED

In 1-oz. and 4-oz. bottles of the granules—In 6-grain capsules, bottles of 50, convenient for making solutions—As a 5% ointment in 1-drachm tubes—
In the form of Vaginal Suppositories, 5%, boxes of 12

Shall we send you a sample of the capsules?

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with emery ground into
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Carbolic acid gangrene of
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Same hand after removal
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IN infections of the hand and in those accidental wounds associated with bacterial invasion of the body, the application of Antiphlogistine means *fortified resistance to infection plus rapid regeneration of damaged tissue.*

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The application of Antiphlogistine, through the induction of active hyperemia, constitutes a kataphylactic procedure which is both leukocytagogic and seragogic in its physiological effects. In short, Antiphlogistine is Nature's synergist.

Antiphlogistine

is a scientific antiphlogistic, supporting and augmenting the defensive mechanism of the body at every stage of the inflammatory or infectious process.

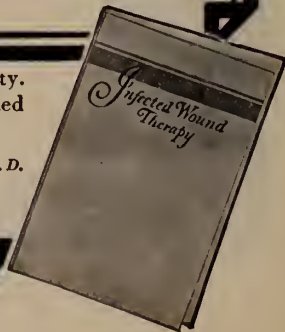
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Changing the intestinal flora, therefore, not only suppresses putrefaction by promoting the growth of benign acid-forming organisms such as the *B. acidophilus*, but tends to restore normal intestinal activities.

The experiments of Distaso, Torrey, Rettger and others have shown that lactose and dextrin are, by far, the best foods for promoting the growth of these protective germs in the colon.

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The interesting story of the method of changing the intestinal flora by the use of Lacto Dextrin has been well described in the book, "A Practical Method of Changing the Intestinal Flora."

It also tells how to combine Lacto Dextrin with Psylla (plantago psyllium)—a plant seed which affords bulk and lubrication—in obstinate cases.

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As a General Antiseptic

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Tincture of Iodine

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Mercurochrome--
220 Soluble

It stains, it penetrates and it furnishes a deposit of the germicidal agent in the desired field.

It does not burn, irritate or injure tissue in any way.

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We have emphasized the exceptional palatability of

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This psychoneurotic unit is a complete and separate hospital, elaborates in furnishings and fixtures.

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This apparatus affords the physician a simple, safe and convenient means of applying medication by use of the fumes. Price complete as illustrated, **\$5.00.**

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devoted to a discussion
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chief causative plants
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Infectious Arthritis

Among arthritics there is invariably a large percentage of patients whose advanced age, weak physical condition or poor veins make intravenous therapy impossible.

For such patients we have prepared the calcium salt of

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as the most efficient for *oral* administration.



Calcium Ortho-Iodoxybenzoate (OXO-ATE "B") is an efficient analgesic for arthritic pains. It will often reduce swelling and muscle spasm, and its ingestion is seldom followed by any unpleasant reaction. At the same time it is more valuable as a palliative than aspirin, salicylates, etc.



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(For Oral Administration)

(In bottles containing 24 half gram capsules (four weeks' treatment)



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THE MEDICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month.) Volume 12, No. 5. (Southern Interurban Clinical Club Number.) Octavo of 306 pages with 40 illustrations. Per Clinic year, July, 1928, to May, 1929. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, March, 1929.

The contributors to this number from Atlanta, Georgia, are: E. Bates Block, Lewis M. Gaines, W. R. Houstoun, Stewart R. Roberts, Paul H. Ringer of Asheville, N. C., V. P. Sydenstricker of August, Ga. From New Orleans: C. C. Bass, C. L. Eshleman, George Herrmann, Chaillie Jamison, F. M. Johns, Isaac I. Lemann, Randolph Lyons, John H. Mussor. From Nashville: C. Sidney Burwell, Hugh J. Morgan, C. Canby Robinson. From Memphis: Bryce W. Fontaine. From Birmingham: Cabot Lull, James S. McLester. From Fairfield, Alabama: Groesback Walsh. From Montgomery, Alabama: Fred W. Wilkerson.

INTERNATIONAL CLINICS. Vol. I. Thirty-ninth series. Philadelphia and London. J. B. Lippincott Company, 1929. Diseases of the Liver, Gall-Bladder and Bile Ducts. By Sir Humphrey Rolleston, Bart and John Wallace McNee. Illustrate third edition. Macmillan and Company Limited, St. Martin's Street, London, 1929.

In this edition many revisions have taken place, summaries have been added, much advance knowledge on diseases of the liver has been brought forward in recent years. In this work the author has brought the subject up-to-date.

ENDOCRINE DIAGNOSTIC CHARTS. By Henry R. Harrower, the Harrower Laboratory, Inc., 1929. Price \$1.00.

This book is for physicians only as the title of the book indicates, it deals with the subject of endocrine diagnosis and includes many charts published for the first time.

THE CLIMATERIC (THE CRITICAL AGE). By Gregorio Maranon. Translated by K. S. Stevens. Edited by Carrie Culbertson. St. Louis. C. V. Mosby Company. 1929. Price \$6.50.

This edition is translated from the second Spanish one which appeared in 1925. Some notes and bibliographic data have been added and the material brought up to date.

THE TECNIC OF LOCAL ANAESTHESIA. By Arthur E. Hertzler, M. D. Fourth edition with 146 illustrations. St. Louis. C. V. Mosby Company, 1928. Price \$6.00.

This edition retains the plan of the preceding ones. It attempts to solve what operations can be done under local anesthesia, it eliminates the nonessentials and

brings the subject of local anaesthesia strictly up to date.

THE NORMAL AND PATHOLOGICAL PHYSIOLOGY OF BONE. Its problems by R. Leriche and A. Policard. Authorized English translation by Sherwood Moore, M. D., and J. Albert Key, M. D. Illustrated. St. Louis. The C. V. Mosby Company, 1928. Price \$5.00.

This book is the fruit of ten years of collaboration. During that period of time the authors have unceasingly observed the numerous aspects of the normal and pathological evolution of bone, have reflected on the problems to which they give rise, and have sought the various solutions in every direction and as a result of their personal observations they have arrived at a new understanding of everything concerned with the development, life, evolution, diseases and regeneration of bone. The work should prove a valuable addition to the surgeon's library.

TUBERCULOSIS AND HOW TO COMBAT IT. By Francis M. Pottenger, M. D. Second edition. St. Louis. C. V. Mosby Company, 1928. Price \$2.00.

In this edition not many changes have been made in the original text. The subject matter has been brought up to date, one new chapter "the will to get well" has been added.

THE INJECTION TREATMENT OF INTERNAL HEMORRHOIDS. By Marion C. Pruitt, M. D. Illustrated. St. Louis. The C. V. Mosby Company. 1929. Price \$3.00.

In this work the author sets down his personal experience with and shows the value of the injection treatment of internal hemorrhoids. The subject matter is arranged in concise form and obviates the need of delving into many medical text books.

THE SURGICAL CLINICS OF NORTH AMERICA (Issued serially, one number every other month.) Volume 9, number 2. (Chicago Number—April, 1929) 243 pages with 70 illustrations. Per Clinic year (February, 1929 to December, 1929.) Paper \$12.00; Cloth, \$16.00. Philadelphia and London.

The contributors to this number are Doctors Edmund Andrews; Bailey; Bettman; Christopher; Curtis; Eisendrath; Gatewood; Hedblom; Herbst; Huggins; McWhorter; Miller; Mullin; Speed; Tumpeter; and van Allen.

MEDICAL INFORMATION IN SICKNESS AND HEALTH. By Philip Skrainka, M. D. with a foreword by W. A. Newman Dorland, M. D. New York. Coward-McCann, Inc. 1929.

In this work the author attempts to bring the doctor and patients close together in a spirit of understanding. In consecutive chapters the causes and symptoms of ailments are described in simple language so that the reader will not be perplexed with technical terms.

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Book Notes

DEVILS, DRUGS AND DOCTORS. By Howard W. Haggard, M. D. with many illustrations from original sources. New York and London. Harper Brothers, publishers. 1929.

This volume is a story of the science of healing from medicine man to doctor. The author has gathered a wealth of authentic material and anecdote in the history of medicine. He describes medical practices among savages, surgical operations performed by the Egyptians, and the ravages of plagues upon our ancestors; and on the basis that the index of civilization is in the care given to the child-bearing woman, he traces the development of obstetrics.

OLD AGE THE MAJOR INVOLUTION. By Alfred Scott Warthin, M. D. with 29 illustrations. New York. Paul B. Hoeber, Inc. 1929. Price \$3.00.

This work gives the physiology and pathology of the aging process. It was the author's lecture before the New York Academy of Medicine October first, 1928.

THE WRITING OF MEDICAL PAPERS. By Maud H. Mellich-Wilson, Editor of the Mayo Clinic Publications. Third Edition, Revised. 12mo of 184 pages. Philadelphia and London. W. B. Saunders Company. 1929. Cloth, \$1.50 net.

CLINICAL ELECTROCARDIOGRAMS;—Their interpretation and Significance by Frederick A. Willius, M. D. Section on Cardiology. The Mayo Clinic, Rochester, Minnesota and Associate Professor of Medicine, The Mayo Foundation, University of Minnesota. Quarto of 219 pages with 368 illustrations. Philadelphia and London. W. B. Saunders Company, 1929. Cloth \$8.00.

In the preparation of this book the author has presented clinical electro-cardiography in a graphic manner. He presents typical records of cardiac disorders and also presents records which exhibit transitional changes.

The book has been devoted entirely to the subject of reading of records themselves and their clinical significance.

EDEMA AND ITS TREATMENT. By Herman Ellwyn, M. D. New York. The Macmillan Company. 1929. Price, \$2.50.

In this book the author aims to explain the formation of edema. He discusses the water content of the body, of the organs and of the cell and the manner in which it is held. Followed by a discussion of the regulation of the water exchange, the formation of edema, individual forms of edema, such as that of cardiac failure, of nephritis, of lipoid nephrosis and certain obscure forms. The last chapter is devoted to the treatment of edema.



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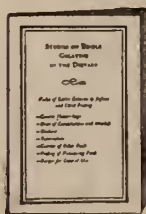
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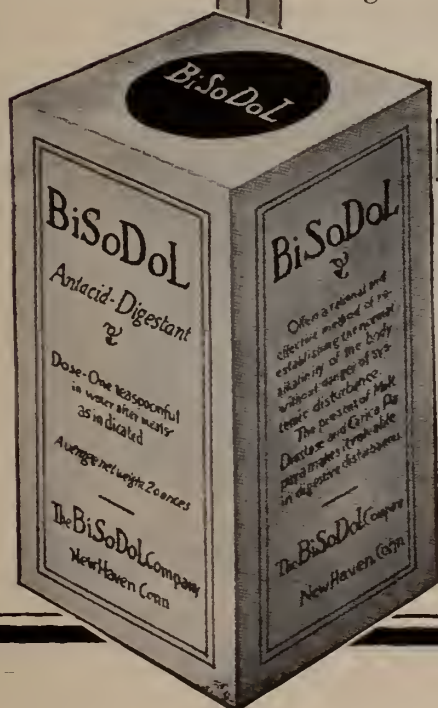
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